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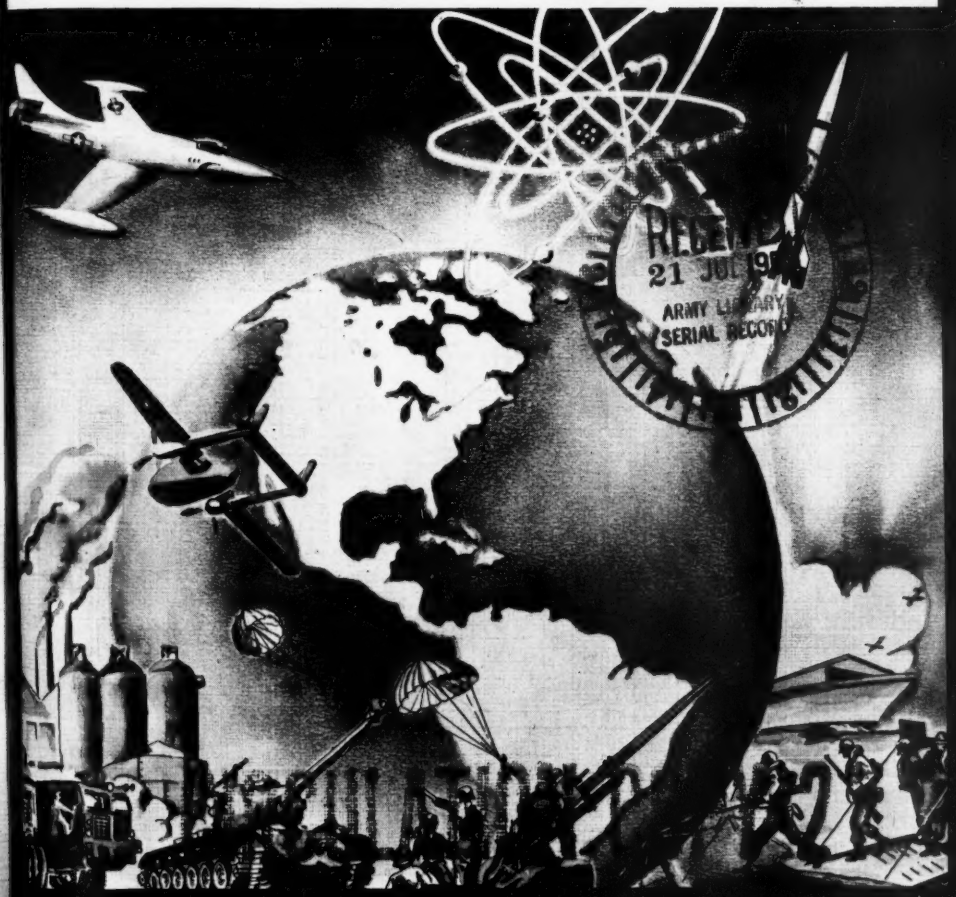
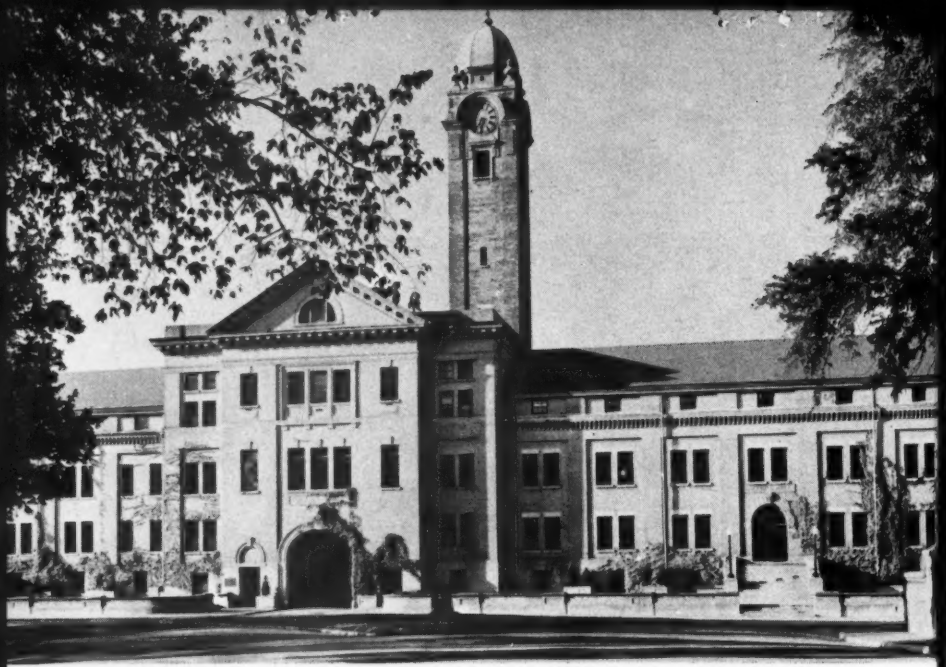


COMMAND AND GENERAL STAFF COLLEGE
FORT LEAVENWORTH, KANSAS

AUGUST 1953 VOLUME XXXIII NUMBER 5



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MILITARY REVIEW

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CALCULATING THE RISK

Colonel Walter E. Sewell, *Infantry*
Professor of Military Science and Tactics, State University of Iowa

The views expressed in this article are the author's and are not necessarily those of the Department of the Army or the Command and General Staff College.—The Editor.

THE combat commander throughout history has faced the problem of calculating the course of action which offers the greatest promise of success with the least risk of failure. The method used in calculating the risk has varied with the leader and his army, but the fundamental procedure required to reach a logical conclusion remains the same because the problem itself has not changed. There are still the calculable elements and courses of the commander to be weighed against the estimated forces and capabilities of an imponderable enemy. The process is presently referred to as the commander's estimate of the situation and involves: the enumeration of the various friendly courses, and the related enemy capabilities; forming pairs from these two categories; assigning to each pair appropriate credits and debits; comparing the relative balances for the various pairs; and thereby concluding which particular course has the most points on the positive side.

To progress through these steps, a table with positive and negative numbers and resultant totals suggests itself as an aid. Furthermore, the use of such a table may eliminate some of the difficulties encountered by those commanders who become confused when following rigidly the form for the estimate of the situation found in Field Manual 101-5, *Staff Organization and Procedure*. Of course, the factors to be considered and hence the form of the table will vary with the situation, but a simple example will serve to illustrate the principle.

Let us suppose that two friendly courses of action, A and B, will accomplish the mission, whereas the enemy capabilities are three, X, Y, and Z. Then we must analyze six combinations, AX, AY, AZ, BX, BY, and BZ. In a particular tactical situation certain factors are vital to the success of the operation. Let us suppose that in this case these factors are *terrain, manpower, fire power, mobility,* and *morale*. Thus, in our analysis, we are concerned, for example, with an evaluation of the terrain, its over-all advantage or disadvantage to us, for each of the foregoing six combinations. To indicate this evaluation it is convenient to set up a scale of numbers, say, from −3 through 0 to +3, where −3 indicates a condition extremely disadvantageous to us, 0, a condition where friend and foe are equal, and +3, a condition highly advantageous for us.

The table shown on page 5 would serve to tabulate the data and compute the balance (algebraic sum) involved in the analysis of the foregoing situation.

The method used in 'calculating the risk' has varied with the leader and his army, but the basic procedure required to reach a logical conclusion remains the same because the problem itself has not changed

Advantages

Placing the numbers in the squares of the table requires the commander, or his staff, to evaluate the vital factors for each combination and thus to weigh carefully the pros and cons of each. The concise tabular form provides continual checks and immediate comparisons, and eliminates much of the repetitious phraseology normally found in paragraphs 3 and 4 of the form for the estimate of the situation.

The table, by virtue of its construction, focuses attention upon those factors which are vital to the situation and which demand careful analysis. The number of evaluations, or squares in the table, is determined by the nature of the tactical problem and the scope of the operation. For example, in a situation where two small-size units oppose each other, the table may be very simple: *morale* may be judged equal, and hence eliminated as a factor; also *mobility* may be eliminated as not a vital factor; and *manpower* and *fire power* may be constant for all combinations and hence one evaluation of these two will carry throughout.

On the other hand, an operation involving large-size units maneuvering over wide areas may require the consideration of factors in addition to those shown in the example. It may be necessary to break down some of the listed factors into subdivisions in order to provide a more detailed evaluation.

An Example

In this connection, *terrain* serves as a good illustration. The word terrain in military terminology involves weather as well as natural and man-made objects and it is often subdivided for purposes of detailed study into: critical features; observation and fields of fire; cover and concealment; obstacles; and avenues of approach. Each one of these may merit separate evaluation. Also *fire power* for large-size units is a complex quantity to determine and will in many cases yield to more accurate evaluation by subdivision into front-line small arms, company support weapons, battalion heavy weapons, tank and artillery fire, air support, and even naval gunfire, if pertinent. Similarly, *manpower* and other vital factors might be subdivided to advantage.

Variations

Some variations and extensions of this tabular method are worthy of mention. For a particular situation it might be desirable to use two columns for each combination, A (friendly) and X (enemy), for example, and obtain composite figures by calculation. This type of table will enable the G2, G3, and other staff officers to fill in their respective factors separately, and hence can be valuable as a work sheet form. In fact, it might be advantageous for the various sections to keep current evaluations of various factors based on data which are applicable equally to friend and enemy. Examples of such data are mobility in tons per mile per hour, front-line fire power in rounds (of small arms) per yard per minute, artillery fire power in percentage

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of area (or line) covered by concentrations, and similar calculations.

An extension of this method consists in deriving the estimate for a command by combining mathematically the estimates for the units of the command.

This method of analysis may seem to have many ramifications, and therein lies a favorable characteristic—it has flexibility.

Another advantage inherent in it is that it encourages more accurate thinking. Numbers are exact and the choice of a particular one over several others demands rather minute analysis and solid justification. A difference of one unit on the part of two individuals may provoke discussion which will bring to light certain essential points that might have been yet undetected in a system employing evaluations based on vague descriptive phrases. Furthermore, such numerical evaluations and scales will point up deficiencies which can and should be eliminated. For example, the defensive index of certain terrain might be raised from −2 to +1 by laying a mine field or stringing some barbed wire in critical areas. Or the mobility index may be low because of a bridge which can be repaired; a stretch of road which should be surfaced; or an unwarranted number of deadlined vehicles. These vital tasks can then be given top priority.

Another advantage which a command will enjoy by employing this method is standardization of evaluation and analysis. If the commanders and officers of a command are all in the habit of thinking in terms of index numbers then the individuals will gradually develop for themselves certain standard criteria, accepted and demanded universally. Consequently, everyone will more nearly speak the same technical language. This means a more efficient operation at all echelons.

FACTORS	A			B		
	X	Y	Z	X	Y	Z
TERRAIN						
MANPOWER						
FIRE POWER						
MOBILITY						
MORALE						
BALANCE						

The Risk in 'Calculated Risk'

Finally, as a word of caution, it should be mentioned that the results of or deductions from the foregoing table should not be accepted blindly. The index numbers at times may be evaluations based on incomplete or even incorrect data, particularly with respect to the enemy factors. The accuracy of the data on which a calculation is based determines, in general, the accuracy of the answer, hence the injection of mathematics has not eliminated the risk. However, the method and the use of the suggested table will augment the calculation and decrease the risk in the classical "calculated risk."

The Future Employment of Reserves

Lieutenant Colonel Henry Harmeling, Jr., *Infantry*
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The views expressed in this article are the author's and are not necessarily those of the Department of the Army or the Command and General Staff College.—The Editor.

THE location, missions, and employment of large reserves, especially armored divisions, are subjects which seem to have been somewhat neglected by military writers. This article consists of a few thoughts regarding reserves and how they might be used in the future.

Historical Background

Commanders have always been aware of the desirability of having a reserve or "a force withheld from action pending its employment in the decisive place, at the decisive time, in a decisive manner." Likewise, it has been one of the maxims of troop leading that "a commander habitually uses his best troops as his reserve." Caesar used his IX Legion; Napoleon his Guards; and Lee the peerless Hood's division. Modern commanders use their armored divisions for reserves since they possess the requisite fire power and mobility to gain a decision when employed at the proper time and in the proper place.

Up to the time of our Civil War, it was the rule that troops "dispersed to exist and concentrated only when they were fighting a battle." This was necessitated by the primitive logistical support available to these early armies. During a campaign they had to live off the land as best they could. This forced them to spread out over a large area. Much of Napoleon's success was due to his masterful concentrations of these dispersed troops on the field of battle. His far-flung divisions and corps would start assembling and marching according to a complicated schedule which eventually resulted in a simultaneous concentric attack on an amazed and overwhelmed enemy.

With the advent of improved transportation it became possible to concentrate large bodies of troops in a small area and still provide them with logistical support. At the same time, the development of modern weapons did away with mass, "close order drill" battle formations, and forced dispersion on the battlefield itself. So we see that the rule was now reversed to "concentrate when off the battlefield—disperse only to fight."

This was the general pattern up to and including World War II. It was customary to concentrate reserves in a small, centrally located area just out of heavy artillery range, where they could move quickly as a body to any portion of the line of contact.

World War II

Let us now look at the typical World War II doctrine for employment of an armored division as the reserve for a corps in a defensive situation (see Figure 1). The corps front might vary from 7 to 35 miles and the depths of the corps rear area might be 10 to 20 miles exclusive of the depth of the front-line divisions. The division would assemble in a "goose egg" some 3 or 4 miles in diameter, at the most, and would be centrally located perhaps 8 to 10 miles behind the main line of resistance. Its probable employment would

be merely to counterattack as a unit and eject any penetration of the main battle position. The division commander could logically expect to have several hours notice prior to the commitment of his division in a counterattack.

When we analyze the foregoing World War II employment of the reserve armored division we can see that the concept was both logical and efficient. Concentrating the division in a small area facilitated supply, control, and communications. Keeping it fairly near the front made it possible to move quickly to any threatened sector and also cut down on maintenance and fuel problems when the division was committed. However, we must keep in mind that the basic problem in World War II was merely the defense of a line and that the main threat of attack, while in the reserve position, was from conventional bombs.

Problems of the Future

The next war will see several factors assume added significance. First and foremost is the atom bomb. It will make large troop concentrations a thing of the past, except perhaps where the troops are in actual contact with the enemy. Our official doctrine on radiological defense states ". . . Whenever possible reserves should be dispersed by battalion or comparable units so that one atomic bomb will not destroy more than one battalion." This passage is a masterpiece of clear, explicit prose and requires no comment.

Another factor which will be with us from now on is the threat of large airborne operations behind our lines. Whereas the World War II commander was mainly concerned with the defense of a *line*, his World War III counterpart must reckon with the defense of an *area*. A large airborne landing in the rear area creates an immediate "second front" which can be dealt with only by the prompt commitment of reserves.

Other factors that may influence the employment of reserves are the probability of mobile defense in great depth on extended frontages, the likelihood of large-scale guerrilla activity, an increase in conventional air attacks, and more mobile enemy armored units.

Conclusions

We have discussed a little of the historical background of reserves, the typical employment of the reserve armored division in World War II, and some of the added considerations that we must reckon with in the future. Putting them together what can we deduce?

1. We may safely say that the armored division will continue to be an ideal unit for the reserve. None of the new developments refutes this deduction. It even appears that the armored division, more than ever before, becomes the only possibility for an effective large reserve.

2. We must go along with the doctrine that the division must be dispersed in units of battalion size to minimize the effects of the atom bomb. The distance between battalions is open to question, but it should be at least 3 or 4 miles.

3. We can plan on the airborne threat being co-equal to the threat of conventional ground attack. This will result in the reserve armored division being held farther to the rear and ready to counter-

In any future war, the potential threat of an enemy employing atomic weapons will make it necessary for the reserve to revert to the old military concept of 'dispersing to exist and concentrating only to fight'

attack in any direction. The dispersion forced on us by the threat of atom bombs might well increase our antiairborne capability.

4. We may have to revise the doctrine that "the reserve is always committed as a unit, never piecemeal." This is treading on pretty shaky ground, but what happens when the enemy launches a simultaneous ground and airborne "early link-up" operation? This problem offers interesting possibilities! The ground attack is at its strongest when it crosses the line of departure and then it becomes progressively weaker; while the airborne attack is weakest when it hits the drop zone and then becomes progressively stronger. Should we try to eliminate the airhead immediately with part of the division and block with the remainder, or should we try to defeat each attack in detail using the entire division?

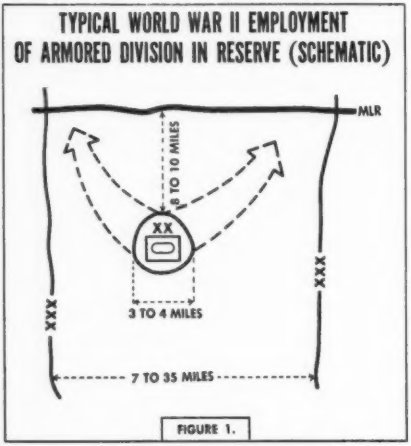

FIGURE 1.

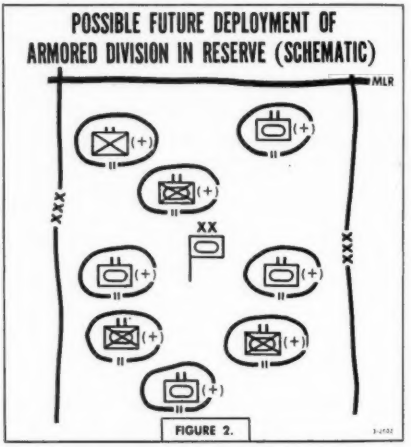

FIGURE 2.

Lieutenant Colonel Henry Harmeling, Jr., graduated from the United States Military Academy in 1942. During World War II, he saw service in the European theater with the 106th Infantry Division. From 1945 to 1946, he was Adjutant, Secretariat, United States Joint Chiefs of Staff. From 1946 to 1949, he served as G3, Schofield Barracks, Hawaii. From 1949 to 1952, he served as Company Tactical Officer, United States Corps of Cadets, United States Military Academy. He is presently a student at The Armored School, Fort Knox, Kentucky.

A Solution

The reserve in the future must revert to the old conception "disperse to exist and concentrate to fight." Although the reason for dispersal will be the atom bomb rather than the necessity for living "off the land," the end result will be the same.

Figure 2 illustrates this concept. The reserve armored division is widely dispersed by reinforced battalions. Each battalion is fully organized for combat and contains the necessary logistical elements to enable it to operate independently.

All counterattacks by this widely dispersed reserve will be based on the principle of concentration on the field of battle. On being committed, the battalions will move by separate routes to the vicinity of the enemy. These battalions will then either attack simultaneously from different directions or they will form into combat commands so close to the enemy that atomic weapons cannot be used against them. In this way no unit larger

than a battalion will ever become an atomic target.

Figure 3 illustrates some schematic examples of counterattacks by the dispersed armored division in various situations. It appears that the attack can be launched more quickly by battalions moving on multiple routes than by an entire division on one or two routes, even though some of the battalions may have much farther to go. This is, of course, because of the tremendous road space requirements of an armored division.

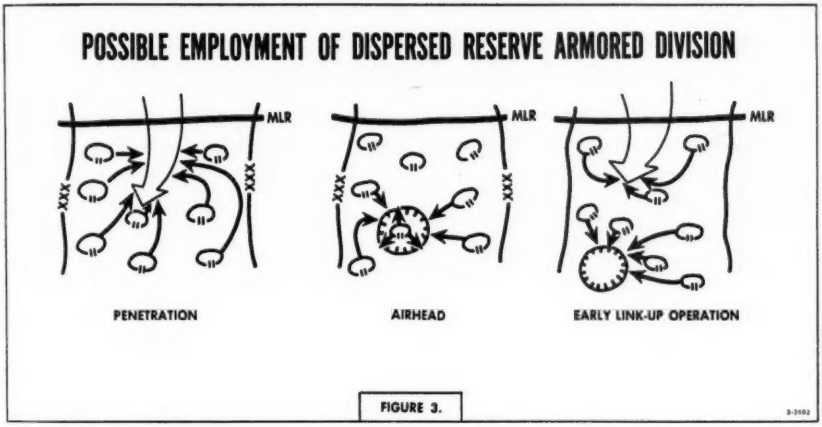

FIGURE 3.

Discussion

We have proposed that the reserve armored division be permanently dispersed by separate battalions except when actually in contact with the enemy. Now let us discuss some of the implications involved.

The first and foremost consideration is that our armor must attain a degree of control and movement which far surpasses anything we now conceive. It will be extremely difficult to control several widely separated battalions and regulate their movements so that they can launch a simultaneous concentric attack from different directions. If the maneuver is improperly executed the battalions will be subject to defeat in detail. With thorough training, however, we should be able to overcome this difficulty.

We will probably need more long-range radios for control of the widely dispersed battalions. This seems to be a relatively minor problem which can be solved readily by appropriate changes in tables of organization.

Our armor should possess *true* cross-country mobility instead of the present combination of tracked and wheeled vehicles. We should work toward the goal that armor should be able to maneuver freely over the land in the same way that ships do on the sea. This will never be the case, of course, but we should nevertheless strive to reduce the effects of terrain to the absolute minimum.

This, then, is the pattern for reserves in the future: small, self-contained units, widely dispersed in width and depth, ready to concentrate quickly in any direction, ready to fight independently if need be. Is this concept new? No, it was old when Napoleon exploited it 150 years ago. Is it difficult of execution? Yes, but it seems possible and the only alternative may well be annihilation!

THEIR MISSION IS MOBILITY

Major Archie J. Clapp, *United States Marine Corps*
S3, Marine Composite Squadron One

The views expressed in this article are the author's and are not necessarily those of the Department of the Army or the Command and General Staff College.—The Editor.

ON 21 SEPTEMBER 1951, the idea of vertical envelopment by helicopter became a reality when a company of United States Marines was airlifted by helicopter to the summit of Hill 884 in Korea.

Thanks to some progressive thinking officers in the Marine Corps and Navy, who saw in the helicopter a revolutionary means of troop movement, the company arrived at its destination, fresh and ready for combat, in a very small fraction of the time that would have been required for surface movement.

What plans and dreams went into the fulfillment of this first helicopter troop movement in combat? What prompted these plans and dreams? What does the future hold for the concept of helicopter employment in combat? To answer these questions, let us go back a few years to 1946.

As you remember, the first atom bomb tests involving ships were conducted in July of that year. Of particular concern to amphibious planners was the indication that the mass of ships assembled off hostile beaches during World War II would present a most lucrative target to an enemy possessing the atomic capability.

For this reason, the opinion was formed in some quarters that amphibious operations could not be conducted in the face of this threat. The Marine Corps refused to accept this opinion.

The obvious way to minimize the effectiveness of potential atomic attacks would be to disperse our forces over a wide area, and keep them dispersed until the last possible moment. At that moment they would be brought together very rapidly, in overwhelming strength, at the point of contact with the enemy. This idea looked fine in theory, but there were too many practical reasons why it would not work.

The actual dispersal of the ships and transports presented no particular problem, but how could the troops and supplies be brought ashore rapidly from such a disposition? Anyone who participated in an amphibious landing in World War II will say that the run-in by landing craft took entirely too long, even when the transports were standing close inshore. Spread them out and keep them well offshore and the problem is then multiplied many times.

Not only would the slow pace of the landing craft require the troops to remain in them for an excessive period of time, but it would also necessitate a concentration of our force sooner than would be desirable in order to hit the beach with sufficient strength to overcome the enemy. With these disheartening factors confronting them, Navy and Marine Corps planners tackled the job of devising ways and means of conducting amphibious warfare in the future.

Because of its comparative speed and its versatility, one vehicle overshadowed all the rest as an answer to the problem of landing troops from a widely dispersed formation of ships. This craft was the helicopter, an aeronautical infant.

Not too much was known about these

craft at the time, so the Marine Corps commissioned a squadron—Marine Helicopter Squadron One (HMX-1)—in 1947 to evaluate the helicopter in the role of assault vehicle. The results of the evaluation conducted by this unit exceeded all expectations. The aircraft which were initially assigned—*HO3Ss*—were not especially adept at troop carrying, because of their limited weight-lifting ability, however, they demonstrated their versatility in many other ways.

Such missions as artillery spotting, high-speed wire laying, tactical observation, and transportation of priority personnel became commonplace during tactical exercises in which the helicopters participated. With the assignment of *HRPs* to HMX-1 in 1948, the transportation of troops, equipment, and supplies was effectively accomplished during subsequent maneuvers.

It was further proved that it was entirely practical to operate transport-type helicopters from the deck of aircraft carriers. This developed into the nucleus of our present concept of the helicopter-borne amphibious assault.

Missions Performed

When the First Marine Brigade landed in Korea in August 1950, it had six *HO3Ss* attached. It was the first military unit in history to employ helicopters in combat. This offered the chance to prove that helicopters could operate as well in combat as they had in field exercises. They did this, and more.

In addition to the missions which had been previously contemplated for them, the helicopters rescued pilots who had been forced down behind enemy lines, deposited outpost guards on key terrain features, and evacuated casualties from front-line positions. More than 10,000 soldiers and marines have been transported to the rear for emergency treatment in this way. It would be difficult to say just how many men are alive today who would not be, had it not been for the helicopters in Korea.

The Marine Corps commissioned its first helicopter transport squadron in January 1951—the HMR-161. The HMR-161 debarked in Korea in September 1951 and shortly there after participated in its first troop carrying action, Operation *Summit*, which was mentioned in the opening paragraph of this article. A system for supplying front-line units with priority cargo was soon perfected which utilized standard cargo nets slung beneath the aircraft.

As impressive as this and subsequent exploits of HMR-161 were, such employment was not the underlying reason for the initiation of the helicopter program in the Marine Corps. As stated before, the helicopter was visualized primarily as an assault vehicle in amphibious operations. Let us now examine the reasons why it is well suited for this role; and study the part it is expected to play in future conflicts.

Vertical Flight

Perhaps we should begin with an explanation of why vertical take-offs and landings are possible in the helicopter. All heavier-than-air aircraft require the movement of an airfoil through the air in order to obtain the necessary "lift" to be sustained in space. Conventional aircraft have their airfoil (wings) rigidly secured to the fuselage, therefore, airfoil and fuselage must maintain forward motion through

The helicopter has brought the third dimension within the realm of possibility of the Marine commander. Now he may attack frontally, from the flank, or, with helicopters, he may bypass a position entirely

the air in order to develop lift required for aerial flight. On the other hand, the helicopter's airfoil (rotor blades) rotates about an axis (drive shaft), thus making it possible to maintain airflow over the airfoil without motion of the aircraft. That, briefly, is why the helicopter does not need forward speed when leaving or returning to the ground. The advantages of this ability are quite obvious when considered in the light of the lack of prepared landing fields which are normally available in the early stages of an amphibious assault.

Previously, Marine commanders in attacking an enemy have been limited to a two dimensional plane of action—attack frontally or from the flank. The ability of the helicopter has made possible a third dimension of action which will permit a commander to bypass a position by going over it. This is one of the most significant developments in the history of warfare and its possibilities are practically unlimited.

Amphibious Operations

The most hazardous phase in an amphibious assault has always been the arrival at the water's edge—the point where the attack ceases to be a water-borne operation and becomes land warfare. During this period of change-over, the attacker is at his weakest, the defender at his strongest. The defender's power to resist is further enhanced by a knowledge of the fact that the attacker will have to meet him at the water's edge. It may be possible to conceal many details of the operation from him, but of this fact he can be sure. This is so fundamental that it sounds ridiculous; however, imagine what a difference that knowledge would make in planning his defense. With this information he can build his network of defensive positions and deploy his forces in such a way as to make the attacker pay dearly to land and stay on the beach.

Consider the complication of defense planning when the attacker is capable of utilizing the third dimension. The attacker then could strike from any direction at any point and in any strength. Thus, the helicopter enables the attacker to choose the point of contact—to hit the defender where it will hurt him most.

The speed of helicopters would permit them to depart from the ships while they were well out at sea—out of visual sight or possibly even out of radar contact range—and still be able to achieve the necessary concentration of force at the point of impact. In addition to the obvious element of surprise which this would add, the ships will have maneuvering space so that evasive action can be taken against atomic attack.

Another important advantage is that ships could be underway while launching the helicopters, making them much less vulnerable to submarine attack than they would be if they were immobile in the water discharging landing craft. This factor is significant in view of the submarine menace which exists.

One disadvange of the conventional amphibious assault is that once it gets underway it is impossible to stop or change it. With helicopters not only can there be several pre-briefed alternate plans, but the operation can be altered by radio at any time prior to the touchdown of the

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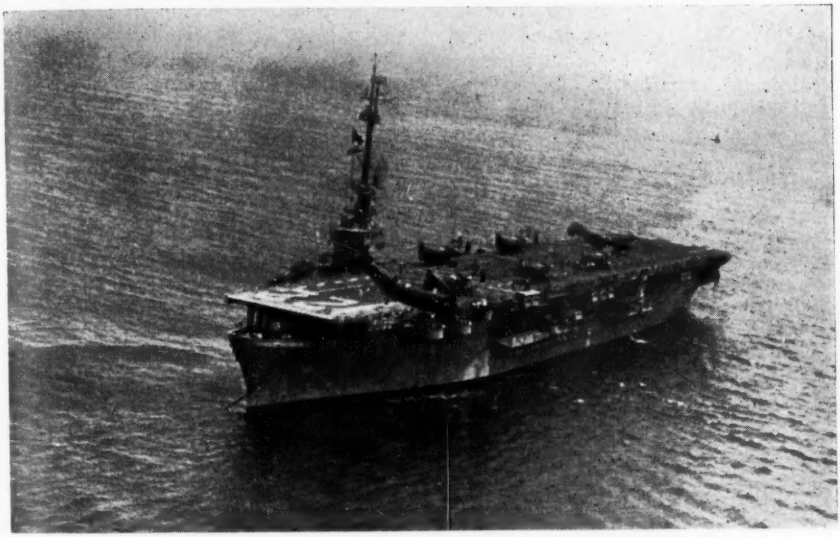
Major Archie J. Clapp served during World War II, as a Marine fighter pilot aboard the USS Bennington operating with both Task Force 58 and 38 in the Pacific theater. After the war, he attended the Amphibious Warfare School, Quantico, Virginia. From 1948 to 1950, he was a flight instructor with the Advanced Training Command, Jacksonville, Florida. From 1950 to 1951, he served with a jet fighter squadron at Cherry Point, North Carolina. In 1951, he was assigned as a flight instructor in helicopters for the Marine Helicopter Program, Quantico, Virginia. In 1952, he served with Marine Helicopter Transport Squadron 161 in Korea, and is presently serving, in Korea, as S3, Marine Composite Squadron One.



The helicopter, because of its comparative speed and versatility, is an answer to the problem of landing troops from a widely dispersed formation of ships. Above, transport-type helicopters operating from the carrier *Palau*. Below, soldiers, landed by helicopter, being dispersed for battle on a hill in Korea.—Department of Defense photos.

helicopters in the landing zone. In extreme cases, the troops could be pulled out, airlifted, and redeployed should their position become untenable.

Waves of helicopters present an unprofitable target for atomic attack. Even if helicopters were on the surface instead of in the air their normal dispersal of waves would not be a profitable target. Airborne they offer a far less profitable target. It seems unlikely that atomic weapons will be available in sufficient quantities to permit our enemy to expend them against such an unremunerative target.

Unfortunately, the limited number of helicopters now available will preclude their exclusive use in large-scale amphibious operations for quite some time to come. However, they promise to be a valuable asset when used in conjunction with surface craft.

Helicopter-borne troops might be used to good advantage in isolating the beachhead in a conventional amphibious assault. This could be accomplished by seizing key terrain features on the beachhead line in order to deny observation of the beach to the enemy; or to neutralize positions housing weapons which dominate the beach and the seaward approaches. Another task that they are capable of performing is the blocking of avenues of approach into the area which is likely to be used by the enemy reserves. The capabilities of the helicopter thus provide adequate material to refute those skeptics who claim that the advent of the atom bomb put an end to the ability of the Marine Corps and Navy to wage amphibious warfare.

Use in Land Warfare

Not only can helicopters be utilized as airborne landing craft in the amphibious attack, but they can perform the function of "Flying Cavalry" in land warfare. This is being demonstrated frequently by the HMR-161 in Korea. A few of the missions for which these versatile aircraft are particularly well suited are the rapid movement of forces from one tactical location to another, including the commitment of reserves; and moving troops across hitherto impassable obstacles, such as mine fields, rivers, and exceptionally rugged terrain. Properly employed, they could increase the effectiveness of our special weapons as well.

Employment With Special Weapons

The wraps recently have been removed from the heretofore highly classified atomic artillery piece. Despite the vast potential fire power this weapon offers, it alone will not defeat a determined defender. It will still be necessary for troops to move in and exploit the shock and confusion inflicted upon the enemy by the devastating blast. For maximum effect, this follow-up by our troops should be launched as soon after the detonation as possible. These troops obviously must remain a safe distance from surface zero at the time of detonation, therefore, the problem of maximum effect versus troop safety presents itself. What better way is there to reconcile the two than to deliver the troops to the blast area by helicopter?

It might appear that while the helicopters are performing this wide variety of missions, there would be a considerable amount of lost motion on return trips. This is decidely not the case. In any action against determined opposition, regardless of how well planned it is, casualties must be expected. These casualties would be placed aboard helicopters on the front lines and be in the hands of well-trained and well-equipped medical personnel, aboard ship or in the rear area, within a matter of minutes.

Helicopter—Paratroop Operations

The airborne attack, utilizing paratroops, is the operation most closely resembling the helicopter attack. Let us compare the two. The paratroops assigned

The helicopter can perform the function of "Flying Cavalry" in land warfare by the rapid movement of forces from one tactical location to another. Above, 1 minute after delivery, this gun crew is ready to fire its 75-mm howitzer. Below, troops taking up positions immediately after a helicopter landing.—Department of Defense photos.

missions have been just about the same as those visualized for helitroops, and no one will dispute the fact that they have performed their missions in an excellent manner considering their many handicaps. However, many of these handicaps can be eliminated by the use of helicopters. It is quite likely that the helicopter will have a similar effect on the operation as television has had in the electronics-communication field for the reasons set forth below.

Combat Range

First, let us consider the combat range of both types of operations. The effective range of sustained paratroop operations is confined to a few hundred miles distance from friendly bases. If the troop carrying planes are operated at extreme range the weight of the amount of fuel required will preclude their hauling a large payload. The combat range of the helicopter, on the other hand, is limited only by the cruising range of the aircraft carriers transporting them; therefore it is possible to launch an attack against any coastal area on the globe.

Special Training

The paratrooper is a highly trained specialist, who jumps into combat. On the other hand, helicopters can deposit *any* troops on the tactical field without requiring prior specialized training of the troops involved.

Area Identification

During World War II, there were several instances where paratroops landed at a considerable distance from their intended "drop zone," when the troop carriers were operating under adverse weather conditions. On the other hand, low ceilings and poor visibility offer no particular problem of area identification when flying in helicopters. The ability of the helicopter to fly at extremely slow speeds, or even to stop in midair, makes it an excellent platform for examining an area before landing troops. Moreover, if a mistake in area identification should occur which resulted in the troops being landed at the wrong place, they could be easily redeployed by helicopter.

Terrain

A paratroop operation requires a relatively smooth drop zone. Troops can be landed by helicopter on any ground on which a man can stand. Under extremely rough terrain conditions, the helicopter can hover and lower the men on a line—this has been done in Korea.

Tactical Integrity

Troop units transported by helicopters remain intact, which enables them to enter combat immediately upon landing, whereas parachute troop units frequently are separated during the jump and do not get back to their proper organizations until after the operation is over. This problem is eliminated completely when helicopters are utilized.

We have discussed what the helicopter can do—now let us examine some of the factors which limit their use.

Helicopter operations are dependent on air superiority. Air superiority is a prerequisite for any aggressive operation.

Ground fire is the second consideration, however, it is believed that the destructive powers of the large caliber guns will be largely offset by the fire direction problems involved in tracking a target which flies low, behind trees and hills, and takes advantage of folds in the ground.

It should be remembered, also, that the approach lanes and landing zones will have been prepared for the helicopters by scheduling air strikes and naval gunfire missions, perhaps atomic weapons will be used. This supporting fire should neutralize the major portion of the fixed defenses opposing the landing, including the heavy antiaircraft positions. That leaves the

In addition to supplying front-line units with priority cargo, the helicopter has been used to evacuate casualties from front-line positions to the rear for emergency treatment. Above, a helicopter delivering supplies by using a cargo net attached to a sling. Below, a battle casualty being evacuated by helicopter.—Department of Defense photos.

principal obstacle, small-arms fire and light antiaircraft weapons, so let us turn our attention to what measures will be taken to minimize *its* effectiveness.

The helicopters will not normally fly over heavily defended areas. The need for this will be obviated in the planning phase. In planning, routes of approach and retirement will be mapped out, taking into consideration terrain and all known enemy positions. Insofar as possible, the helicopters will take advantage of natural cover and concealment enroute to and from the objective. Flying low, they will snake their way through valleys and behind trees, offering the enemy only a fleeting target.

A former executive officer of Marine Helicopter Transport Squadron 161 stated: "No planes in the outfit were shot down because the pilots were always conscious of terrain and took maximum advantage of cover provided by hills when they were in close proximity to the front lines." Although he was referring to operations behind our own lines, the same principle will apply, to a lesser degree perhaps, to flights over enemy-held ground. The strong points that cannot be avoided by flying around them can be neutralized by supporting fires. Smoke, layed by aircraft, can be used to screen areas from enemy view, to decrease the defender's accuracy of fire still further.

Incorporated Protection

Because 100 percent neutralization of an area cannot be expected and because all enemy positions cannot be avoided, there will be some guns left to fire on the helicopters. What devices does the helicopter have incorporated as protection against this fire?

Present models have self-sealing fuel tanks to minimize the risk of fire resulting from a gunfire hit. They also have metal rotor blades to reduce the chances of having a blade shattered by gunfire.

Forthcoming models will probably have armor plate and flak curtains, however, our present models lack them because of weight restrictions. Regardless of what protective devices are incorporated, however, the best defense will continue to be thorough planning, proper neutralization of the area, and skillful piloting of helicopters.

Properly employed, the helicopter's versatility offers to provide amazing possibilities for increased mobility of our ground forces. Mobility, in turn, is considered to be a requisite for the achievement of military victory in this so-called "atomic age."

There being no precedent for their use, the process of developing tactics and techniques, to ensure their proper employment, is a continuous one. Marine helicopter transport squadrons are accomplishing this by constantly working field problems with their ground brothers-in-arms.

In this way, the helicopter planners and ground force planners are going through the growing pains of this new innovation together. Because of this, the spirit of teamwork that already prevails between Marine air and ground units will be intensified, paving the way for a mutual understanding of the others problems, that will pay great dividends when the chips are really down.

No one armed service and no one weapon in any single service will serve all purposes of our security.

Admiral William M. Fechteler

Our Military Status in Japan

Major Richard B. Kreutzer, *Artillery*
Instructor, Command and General Staff College

The views expressed in this article are the author's and are not necessarily those of the Department of the Army or the Command and General Staff College.—The Editor.

ON 28 APRIL 1952, Japan once again became a sovereign nation with the coming into force of the Japanese Peace Treaty. As a result, the role of United States military forces in Japan changed from one of occupation to that of "guests" invited by the Japanese Government to participate in the defense of that nation.

Although from a theoretical standpoint it could be said that this new relationship was accomplished practically overnight by the signing of the treaty of peace, the transition was actually a gradual process extending over a period of 7 years. The purpose of this article is to review briefly the relationships between the United States military forces and the Japanese during the occupation and the events which led up to the current status of United States military forces in Japan. This discussion is necessarily limited to military considerations, although it is recognized that other factors of a political and economic nature are involved.

The occupation of Japan, beginning in September 1945, was based on two broad requirements which emanated from the Joint Chiefs of Staff. The first was to ensure that Japan would not again become a menace to world peace. The second was to bring about the establishment of a peaceful and responsible government that would conform as closely as possible to the generally accepted principles of democratic self-government.

In keeping with the first requirement, action was initiated without delay to demobilize all Japanese military personnel, disband the Imperial General Headquarters, demilitarize Japanese war industries, and destroy or demilitarize all war material. All of the foregoing was accomplished during the early years of the occupation without incident and with the complete support of the Japanese people.

The new Japanese constitution, adopted in November 1946, was designed to fulfill the second requirement—the establishment of a peaceful and responsible government. With regard to Japan's future military role, the constitution stated:

> The Japanese people forever renounce war as a sovereign right of the nation and the threat or use of force as a means of settling international disputes . . . land, sea, and air forces, as well as other war potential, will never be maintained. The right of belligerency of the state will not be recognized.

Pre-Conflict Relationship

From the foregoing, it is evident that the "New Japan" was to be dedicated exclusively to peaceful pursuits. World conditions at that time apparently made this goal appear realistic. During the major part of the occupation, there was little need for a security force, either internally or externally, except for the usual local civilian police protection re-

Japan and the United States—two former antagonists of World War II—are now bound together, through the Japanese-American security pact, with the common purpose of maintaining peace in the Far East

quired to maintain law and order. To a large degree, this was due to the traditional manner in which the Japanese people submitted to authority, and also, in part, to the presence of the tactical troop elements of the occupation forces.

While the tactical employment of troops was never required, the presence of such forces in Japan was certainly a deterrent to any organized resistance to the occupation on the part of dissident groups or possible military action against the nation from without. Although troublesome at times, the Communist elements in Japan were kept under control by the joint co-operation of the occupation authorities and the Japanese Government without resorting to the use of military forces.

The basis of the early relationships between the occupation forces and the Japanese was contained in a Joint Chiefs of Staff directive of September 1945 to the Supreme Commander for the Allied Powers (SCAP) which stated in part:

> Control of Japan shall be exercised through the Japanese Government to the extent that such an arrangement produces satisfactory results. This does not prejudice your right to act directly if required. You may enforce the orders issued by you by the employment of such measures as you deem necessary . . .

In actual practice, the general and special staffs of General Headquarters, SCAP, accomplished the various occupation tasks by the promulgation of SCAP-approved directives and memorandums to the Japanese Government. The occupation forces in the field had the responsibility of ensuring full compliance on the part of the Japanese Government and its subordinate agencies. Such tasks as the collection and demilitarization of weapons, and the selection and safeguarding of machinery and installations to be earmarked as possible reparations, were supervised by the occupation forces in the field. Contact with the Japanese Government representatives was usually effected at the regional and local levels.

Administratively, the Japanese supported the occupation by furnishing necessary housing, transportation, supply and maintenance, training, and recreational facilities. In addition, as early as September 1949, action had been initiated to process large quantities of ordnance, engineer, and signal equipment which had been left on the various Pacific islands following World War II—by utilizing Japanese facilities.

The Korean Invasion

The invasion of South Korea on 25 June 1950 saw the relationships between the United States military forces and the Japanese enter a period of transition. The most immediate evidence of this fact was the early commitment of the United States 24th and 25th Infantry Divisions and the 1st Cavalry Division, all part of the occupation forces, to action in Korea. From the earliest phases of the Korean conflict, it became increasingly evident that additional Japanese participation in the security of their homeland was required.

Accordingly, during July 1950, the Japanese Government, with the concurrence of SCAP, authorized the establishment of the National Police Reserve. The initial strength of the organization was set at 75,000. The primary mission of this force was to assist the occupation forces and the local civilian police in the internal security of Japan. In addition, it was ob-

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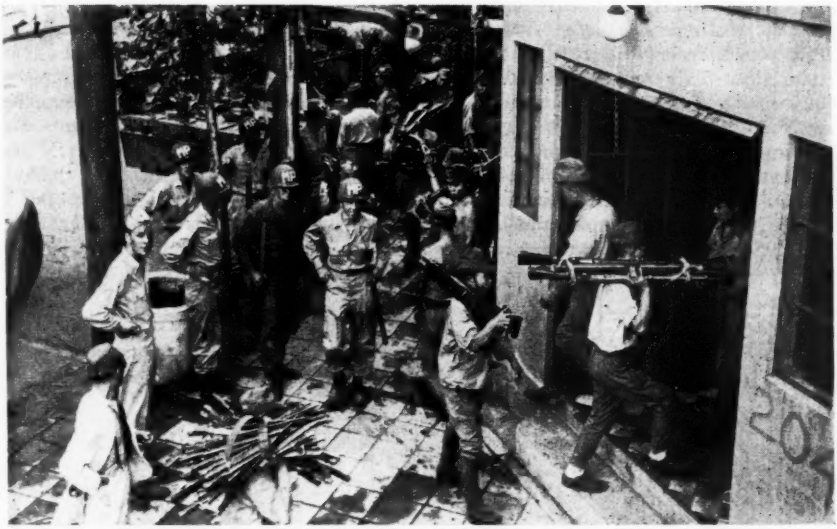
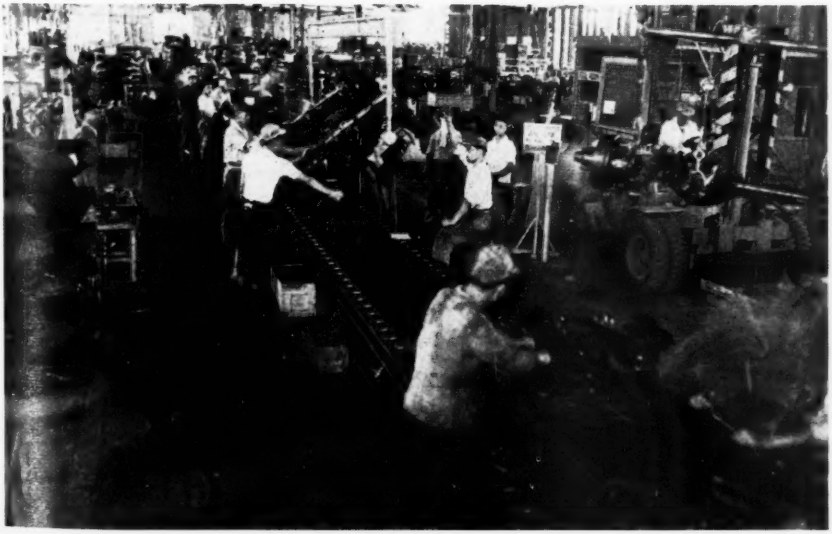


The operation of occupation tasks and supporting facilities in Japan was supervised by United States personnel with Japanese nationals doing the work. Above, Japanese soldiers carrying demilitarized weapons into a collection depot. Below, Japanese civilians working in an Ordnance rebuild plant in Japan.—Department of Defense photos.



vious that a second, yet equally important, mission would be the defense of Japan from attack from without if it were to materialize. This requirement became a stark reality with the mounting out of the newly activated X Corps and its accompanying forces for the Inchon landing in September 1950. This left only one partially trained regimental combat team and various provisional defense groups, made up from logistical support agencies, for the defense of Japan. The National Police Reserve, armed with various types of small arms, augmented the meager forces manning the vital defensive outposts on the islands of Hokkaido and northern Honshu until the arrival of the United States 40th and 45th Infantry Divisions, in Japan during April 1951.

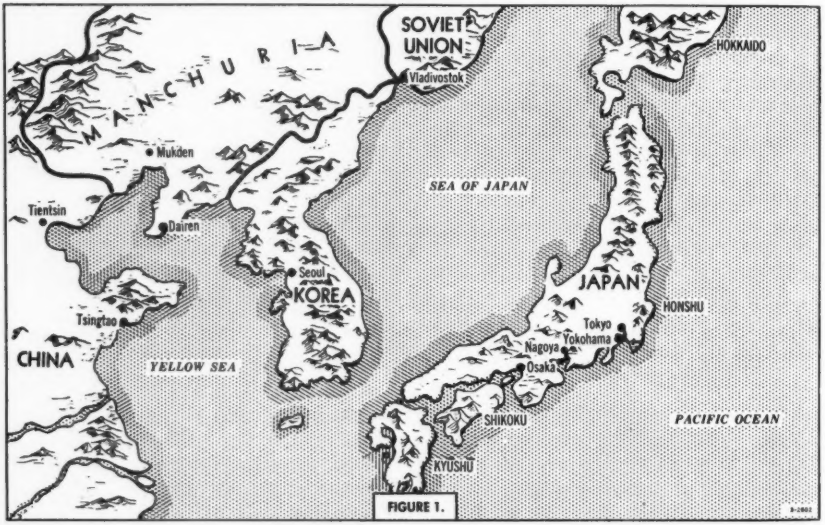


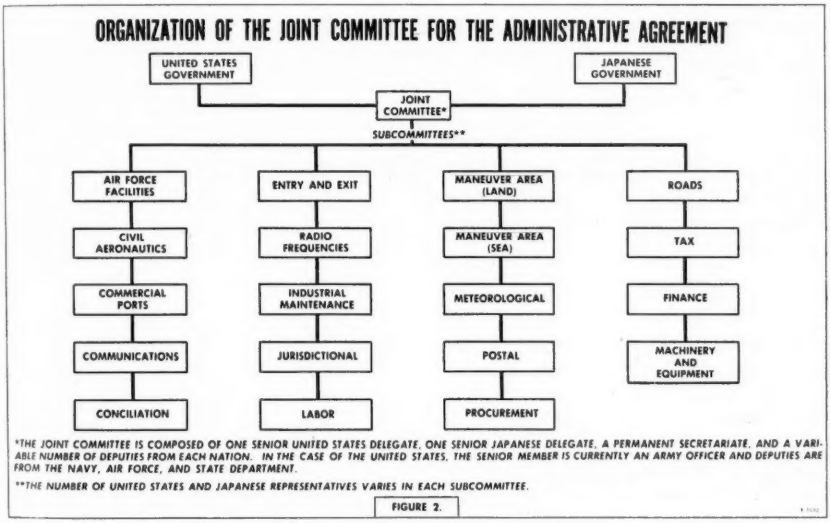
FIGURE 1.

As a result of the sound arrangements which had been established during the 5 years of the occupation, the United States military forces in Japan were in a position to assume full logistical support of the Korean effort from the very outset. In spite of huge equipment losses, resulting from early tactical reverses, troops were issued their authorized equipment and kept resupplied from stocks available in Japan until such time as the Zone of Interior pipe line could begin to deliver supplies and equipment at the required rate. To meet the ever increasing demands of the Korean conflict, hospitalization, maintenance, storage, and transportation facilities in Japan were expanded greatly. More dependence was placed on private indigenous industrial facilities in order to augment existing United States-supervised maintenance installations and additional ports and subports were opened to receive the greatly increased supply tonnages—particularly Class V. Railway schedules were stepped up in order to expedite delivery of material from the huge supply depot complex in Yokohama to the aerial ports of embarkation in southern Kyushu for air drop or air shipment to the combat zone. The mounting demands placed on hospital facilities in Japan required augmentation of the medical services. This was accomplished, to a large degree, by

the recruitment and training of large numbers of Japanese medical technicians. All of these operations required an ever increasing degree of co-operation between the United States military forces and the Japanese.

Peace Treaty

As early of 1947, the Supreme Commander for the Allied Powers had indicated that the occupation forces had accomplished their mission and that Japan was ready for a treaty of peace. However, for various political reasons, no conclusive action was taken until the fall of 1950. As a result of close co-ordination between the United States, Japan, and other nations which had been at war with Japan, a treaty was prepared which was acceptable to the majority. On 8 September 1951, the treaty was signed at San Francisco, with 48 out of the 51 nations involved participating. The ratification of the treaty by the required number of nations was effected on 20 March 1952, and the treaty entered into force on 28 April 1952.


ORGANIZATION OF THE JOINT COMMITTEE FOR THE ADMINISTRATIVE AGREEMENT
UNITED STATES GOVERNMENT
JAPANESE GOVERNMENT
JOINT COMMITTEE*
SUBCOMMITTEES**
AIR FORCE FACILITIES
CIVIL AERONAUTICS
COMMERCIAL PORTS
COMMUNICATIONS
CONCILIATION
ENTRY AND EXIT
RADIO FREQUENCIES
INDUSTRIAL MAINTENANCE
JURISDICTIONAL
LABOR
MANEUVER AREA (LAND)
MANEUVER AREA (SEA)
METEOROLOGICAL
POSTAL
PROCUREMENT
ROADS
TAX
FINANCE
MACHINERY AND EQUIPMENT
*THE JOINT COMMITTEE IS COMPOSED OF ONE SENIOR UNITED STATES DELEGATE, ONE SENIOR JAPANESE DELEGATE, A PERMANENT SECRETARIATE, AND A VARIABLE NUMBER OF DEPUTIES FROM EACH NATION. IN THE CASE OF THE UNITED STATES, THE SENIOR MEMBER IS CURRENTLY AN ARMY OFFICER AND DEPUTIES ARE FROM THE NAVY, AIR FORCE, AND STATE DEPARTMENT.
**THE NUMBER OF UNITED STATES AND JAPANESE REPRESENTATIVES VARIES IN EACH SUBCOMMITTEE.
FIGURE 2.

The three main provisions of the treaty from a military point of view were:

1. Japan is restored to the society of nations as an equal.

2. Japan's sovereignty is limited, in accordance with the surrender terms, to the four main islands of Hokkaido, Honshu, Shikoku, and Kyushu. (See Figure 1.)

3. The treaty provides for the future security of Japan by permitting rearmament and stationing of foreign troops on Japanese territory by separate agreement.

In regard to the last point, the treaty states:

> All occupation forces of the allied powers shall be withdrawn from Japan as soon as possible after the coming into force of the present treaty, and in any case not later than 90 days thereafter. Nothing in this provision shall however prevent the stationing or retention of foreign armed forces in Japanese territory under or in consequence of any bilateral or unilateral agreements which have been or may be made between one or more of the allied powers, on the one hand, and Japan on the other.

As can be readily seen, this clause opened the way for an agreement between

Japan and the United States which would provide for the necessary defense of the Japanese islands, and the retention of United States troops and facilities in Japan in furtherance of the Korean mission.

Japan and the United States ratified a security treaty which became effective on the same date as the peace treaty—28 April 1952. In the security treaty, the United States clearly defines its position by stating that:

> The United States of America, in the interest of peace and security, is presently willing to maintain certain of its armed forces in and about Japan, *in the expectation, however, that Japan will itself increasingly assume its own defense against direct and indirect aggression*, always avoiding any armament which could be an offensive threat to serve other than to promote peace and security in accordance with the purposes and principles of the United Nations Charter.

In the security treaty, Japan agreed not to grant any bases, or the right to garrison troops in Japan, to any third power without first consulting the United States. In turn, the United States agreed to contribute to the security of Japan from attack from without and assist in suppressing any large-scale internal riots and disturbances in Japan caused by instigation or intervention by an outside power or powers. The disposition of troops in Japan and their administration was to be agreed upon through a series of "administrative agreements." The agreements were to specify in detail all of the relationships between the two governments and the status of members of the United States armed forces and associated civilians who were placed in Japan as a result of the treaty.

Administrative Agreement

As previously indicated, during the occupation, the Japanese Government was obliged to provide certain administrative support to the occupation forces, without cost to the United States. United States forces also were afforded certain personal privileges as a result of their position as members of one of the victorious powers occupying a defeated nation. In keeping with the new relationship brought about by the peace and security treaties, a reexamination of these administrative arrangements was necessary. Accordingly, a joint United States-Japanese delegation concluded a general agreement on 28 February 1952. The major agreements reached were:

1. Japan grants the United States the use of such facilities and areas, land and sea, as may be required to carry out the provisions of the security treaty. The United States will have full rights and power over such facilities.

2. All civil and military air traffic control and communications systems are to be developed in close co-ordination and integrated to the extent necessary for fulfillment of collective security interests.

3. The United States armed forces are to have the right to use all public utilities belonging to, or controlled or regulated by, the Japanese Government, with the same relative priority as the Japanese Government agencies.

4. In the event of hostilities, or immediate threatened hostilities, in the Japan area, the two governments are to consult with a view to taking necessary joint measures for the defense of the area.

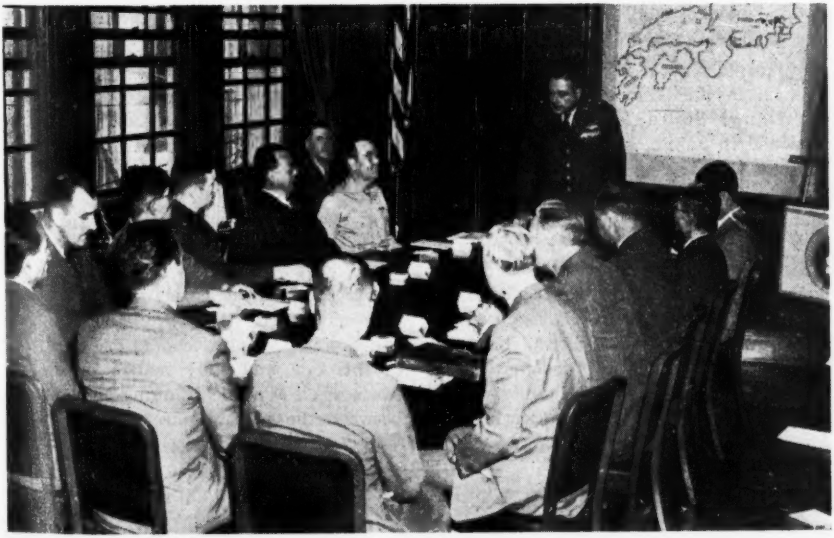
In addition to the foregoing, other agreements were reached on fiscal arrangements whereby the cost of the upkeep of the United States forces would be shared by both nations. The agreement also granted the United States forces such privileges as:

1. Freedom from Japanese taxes.

2. Freedom of entry and exit.

3. United States right of criminal jurisdiction over all United States personnel pending further agreements between the two nations.

The Japanese-American security pact provides for the defense of Japan and the retention of United States troops and facilities in Japan. Above, Japanese and American dignataries at the signing of the pact in San Francisco. Below, a meeting of the members of the Industrial Maintenance subcommittee in Japan.—Department of Defense photos.



Joint Committee

It was recognized that a continuing adjustment of the areas and facilities required by the United States forces would be necessary, and that other matters, relating to the administrative agreement, would require joint resolution from time to time. Therefore, provisions were made for the establishment of a Joint Committee, composed of senior representatives of both Japan and the United States, to resolve the problems which would arise during the implementation of the administrative agreement. Since April 1952, members of the Joint Committee and various working subcommittees, composed of representatives of Japan and the United States (Army, Navy, Air Force, and State Department), have been hard at work implementing the provisions of the administrative agreement. Matters which cannot be resolved by the subcommittees are referred to the Joint Committee which, in turn, refers unsolvable problems through appropriate channels to the respective governments. Figure 2 indicates the broad range of the current discussions.

The Future

In keeping with the joint agreements outlined in the security treaty, substantial United States forces are currently stationed in Japan, so disposed as to defend the country. As inferred in the security treaty, the United States will undoubtedly bear this responsibility until such time as the Japanese are capable of progressively taking over the security of their homeland. Efforts are currently being made to strengthen the Japanese security forces, previously known as the National Police Reserve, and now designated the National Safety Corps (ground forces) and the Coastal Safety Corps (sea forces).

It is impossible at this time to estimate when the Japanese will be able to assume full responsibility. It is estimated, however, that the ground elements will be able to begin assumption of such responsibilities in the very near future. The degree to which such responsibilities can be assumed and the phasing thereof will be dependent not only on domestic developments but upon the current international situation. On the other hand, it appears evident that United States air and naval forces will undoubtedly be required in a support role for some time to come. As long as the Korean conflict continues and United States forces are employed in the security of Japan, there will be a continuing requirement for extensive administrative and logistical facilities in Japan. It can be expected, however, that these operations will be greatly reduced in the event of cessation of hostilities in Korea and will be further reduced with the assumption of the security role by the Japanese themselves.

Spirit of Co-operation

A spirit of co-operation exists between two former antagonists of World War II. Japan and the United States are bound together with the common purpose of maintaining peace in the Far East. The initial step in the accomplishment of this aim has been effected by ensuring the security of Japan.

As the northern anchor of an island chain defense line, which includes Okinawa, Formosa, and the Philippines, Japan is of great strategical importance to the free nations of the world. Both United States and Japanese leaders are cognizant of this fact and fully realize the importance of close and continuing co-operation between the two nations.

Close Air Support in Amphibious Operations

Lieutenant Colonel Allan G. Pixton, *Artillery*
Instructor, Command and General Staff College

THE time is D-day, H-hour plus 10 minutes. The initial assault waves have landed on the beach and are just getting organized and moving forward. Naval gunfire has been lifted from the beach area and is being directed upon inland targets.

Suddenly, from an almost impregnable pillbox, comes the sharp crack of an 88- or 90-mm high-velocity gun. After the second round from this gun, the only LVT (A) (landing vehicle, tracked, armored) in the vicinity becomes a casualty. The gun with its flat trajectory and long range continues to fire on groups of men, landing craft, and any tanks or landing vehicles which have been able to reach the beach.

After what seems an eternity to those on the beach, but in reality is just a few moments, a flight of fighter aircraft appears over the area and makes a run directly at the gun emplacement. Nothing happens. The aircraft circle and make another run at the emplacement, but this time from a slightly different angle. As they approach the emplacement they each fire four rockets into the enclosure from which the gun is firing. The planes circle again as if to make another run, but instead of coming back to the target again, they climb to a higher altitude and seem to fly aimlessly over the area of the ever expanding beachhead like a mother hen watching her chicks.

After the planes have fired their rockets and the fire from the gun emplacement is silenced, a soldier nearby who has witnessed the entire episode turns to his buddy and says: "Ain't them guys wonderful? It sure pays to have friends."

There was more to the episode than friendship however. There were organized, well-trained units which made it possible for the planes to be there. Personnel, equipment, and planning were needed to guide the planes to their target. There were months of training on the part of the technicians who readied the planes, and years of training and experience behind the pilots who flew the planes to the right spot at the right time.

Historically, close air support for amphibious operations as we know it today developed rather sporadically. When we entered World War II, we were using the same doctrine which had been developed in the 1930s. However, during our first amphibious operation of the war at Guadalcanal, it became apparent that this doctrine was defective in that it did not provide for adequate means for controlling the aircraft supporting the operation. Consequently, a system was devised in which the aircraft were controlled from the control ships of the attack forces during the entire operation. This system generally prevailed in the Pacific until the operations at Iwo Jima, Luzon, and Okinawa, when the control of close air support units was established ashore fairly early.

Similarly, in the landings in Normandy

Although the Navy-Marine and Army-Air Force teams use different close air support systems, the differences are minor. However, the Navy-Marine system is normally employed in amphibious operations

and Southern France, control of the close-support aircraft was established ashore early in the operation in order to furnish more accurate and timely fires to the supported troops. Our present doctrine provides for the control facilities to be established ashore at the time the landing force commander establishes his command post ashore.

Responsibility

Under present joint procedures, the Navy is charged specifically with the responsibility for:

1. Organizing and equipping, in co-ordination with the other services, and providing naval forces, including naval close air support forces, for the conduct of joint amphibious operations.

2. Amphibious training of all forces as assigned for joint amphibious operations in accordance with the policies and doctrines of the Joint Chiefs of Staff.

3. Developing, in co-ordination with the other services, the doctrines, procedures, and equipment of naval forces for amphibious operations and the doctrines and procedures for joint amphibious operations.

In addition to these and other responsibilities, the Department of the Navy is charged with maintaining the Marine Corps, including land combat and service forces, and organic aviation.

One of the primary functions of the Marine Corps is to develop, in co-ordination with the Army, the Navy, and the Air Force, the tactics, techniques, and equipment employed by landing forces in amphibious operations. (The Marine Corps shall have primary interest in the development of those landing force tactics, techniques, and equipment which are of common interest to the Army and the Marine Corps.)

Through participation on joint boards, all three of the services—the Army, the Navy, and the Air Force—participate in the formulation and development of doctrine and techniques for amphibious operations, including close air support thereof. However, it can be seen that by direction, the Navy has more responsibility for these particular matters than do the other two services.

Control System

Let us now examine a typical close air support system as it is operated during an amphibious operation by the Navy and Marine Corps.

An assault infantry battalion commander has just determined that he has a suitable target to his front which he wishes to have attacked by aircraft. He designates the target to the appropriate member of the tactical air control party (TACP) which is operating with his battalion. The TACP then transmits the request direct to the tactical air direction center (TADC). During the early phases of the amphibious operation this control agency (TADC) will be afloat. However, it will be moved ashore at the time the landing force commander (commander of the ground force elements of the amphibious operation) establishes his headquarters ashore. During the time the TADC is afloat and for the early phase of its operations ashore, the tactical air control center (TACC) is operating as the next higher tactical air support echelon above the TADC. The TACC operates under the control of the amphibious task force com-

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The control of close-support aircraft is established ashore early in an operation to furnish more accurate and timely fires to supported troops. Above, a forward air controller team calling in an air strike on an enemy-held position. Below, carrier aircraft preparing for flight to support ground troops.—Department of Defense photos.

mander, who is responsible for the overall tactical air support of the operation as well as for the air defense thereof.

The regimental and division TACPs monitor the request made by the battalion TACP and if they disapprove the request being made they will cut into the net and so state. They might not approve the mission if it is too close to an adjacent unit or if it would interfere with other fire support plans. However, if they have no objection to the mission requested, they will remain silent and their silence signifies approval.

If the mission is approved at the TADC, a specific air unit is assigned to carry out the mission, and is given a description of the target. At the same time, the tactical air co-ordinator and the air observer are also briefed.

When the attacking aircraft approach the target area, they will be guided to their target by either the tactical air co-ordinator in the air, or by the TACP on the ground. However, in many cases, the TACP will be able to designate the target to the air co-ordinator prior to the time the attacking aircraft arrive in the area. Then, when the attacking aircraft arrive, they can be guided to the target by the tactical air co-ordinator who is airborne, and who sees the target from the same relative position as the attack pilots do. In the case of a target which is difficult to locate, the tactical air co-ordinator's plane can fire a target-marking smoke rocket. In this case the wingman for the tactical air co-ordinator will follow him on his run to the target and will designate the target to the attacking pilots in relation to the spot where the white phosphorous rocket lands.

This system is similar to the Air Force system of having an airborne TACP flying in the vicinity of the target area at all times in order to guide attacking aircraft to their targets. This system was known to many in World War II as "Horsefly." The same system is presently being used in Korea under the name of "Mosquito."

The attacking aircraft then attack the target as it is pointed out to them by the tactical air co-ordinator or the TACP. After the attack has been completed the aircraft return to their bases either afloat or ashore, or if they have sufficient fuel and armament remaining they may return to their alert location to answer the call for a subsequent mission.

Functions

Now let us examine the functions of the various individuals and echelons involved in this operation in order to point out the ways in which close air support for amphibious operations differs from close air support for normal ground operations.

The control of close air support at the division level is accomplished through the TACPs. Each Marine division has a signal battalion assigned to it organically. One of the companies in the signal battalion is called the air and naval gunfire liaison company (ANGLICO). The two main elements of the ANGLICO are the naval gunfire platoon and the air support platoon. The air support platoon contains 13 tactical air control parties, 1 for each of the division's 9 infantry battalions, 1 for each of the 3 infantry regiments, and 1 for the division headquarters. Each of the nine battalion TACPs is composed of two lieutenants and eight enlisted communications personnel. Both of the lieutenants are aviators, with one acting as the air liaison officer (ALO) and the other acting as the forward air controller. The primary function of the forward air controller is to direct the close-support aircraft that are assigned to that particular area for missions.

The air liaison officer normally monitors the air support request net and acts in the capacity of an adviser to the commander of the supported battalion. However, the ALO at the battalion may also perform the duties of the forward air controller, which means that this team has

the capability of directing two air strikes simultaneously for the infantry battalion.

At the regimental level, the TACP is composed of an aviator captain, who performs the function of the ALO, and eight enlisted communications personnel. This team advises the regimental commander on air matters, and monitors the requests of the battalions for air support; but may also initiate requests for air support.

The TACP at division contains a major and a captain, both aviators, and 12 enlisted communications specialists. Both of these officers on this team act in the capacity of ALOs, inasmuch as liaison and advisory functions are of paramount importance at this level. However, requests for close air support may also be initiated by this team and missions actually may be controlled by the team.

We see, then, that even though their primary missions might differ, depending upon the echelon at which they are working, the TACPs have a threefold mission: first, that of exercising direct control over close-support aircraft when appropriate; second, that of providing communications and liaison between the combat units on the ground and the air support agencies either afloat or ashore; and, third, advising the ground commander on the appropriate use of the close air support facilities.

Even though the name of the team at the division echelon may differ from TACP in the Marine division to Air Liaison Party in the Army division, and the number of personnel assigned the teams may be different, the functions of the teams are relatively the same in a normal ground operation and in an amphibious operation.

The big difference lies in the fact that in the Navy-Marine organization the TACPs are an organic part of the ANGLICO which is an organic part of the signal battalion of every Marine division. This means that any time the Marine division is committed to combat, whether in an amphibious landing or in a normal ground combat role, it has its TACPs at the division, regimental, and battalion headquarters where they are always present to carry out their mission of assisting in furnishing close air support to the combat forces.

In the normal ground operations with which we are all familiar, the TACPs are not always available when they are needed most. During amphibious operations every effort is made to furnish sufficient TACPs to accomplish the mission. However, this has not always been possible, and under the present Army-Air Force arrangement there seems to be no certain method of ensuring that each assault division will have a properly trained and equipped TACP with each of its battalions and regiments. It would certainly be desirable to have sufficient teams available for all operations, especially for an assault landing on a hostile shore.

One further difference between this type of operation and the normal land operation which should be pointed out is that the Navy-Marine system utilizes the TACPs to forward requests to the TADC for reconnaissance and supply missions, as well as for fire-support missions, whereas in the normal Army-Air Force scheme of things these requests are normally forwarded through Army communications channels to the Joint Operations Center, with separate systems used for preplanned tactical missions and for supply missions.

Communications Nets

The tactical air request net (TAR) is guarded by the tactical air control parties of the division, regiment, and battalion, and by the tactical air direction center, as well as being monitored by the tactical air control center. Initially, upon landing, the TACPs use team-pack radio equipment to enter this net but shift to vehicular equipment as soon as such equipment can be landed. This net is utilized by the TACPs to request air support

missions from the tactical air direction center, to furnish tactical information to the tactical air direction center, and to report the effectiveness of a support mission. Silence on the part of the TACPs of higher echelons indicates approval of the requested air support mission. However, the tactical air control center and division or regimental TACPs may enter this net at any time to modify or disapprove a requested mission which would endanger friendly troops or conflict with other air operations.

Tactical Air Direction Net

The tactical air direction net (TAD) is guarded by the tactical air control parties of the division, regiment, and battalion, and by the tactical air direction center, tactical air control center, tactical air coordinator, and the aircraft on station assigned to provide close air support. Teampack radio equipment is also used by the TACPs to enter this net until such time as it can be replaced by vehicular equipment. The net is used for the control of supporting aircraft in flight, and as a means by which the aircraft can request and report target information. The attack force commander exercises control over allocated supporting aircraft through his tactical air direction center. However, after the landing force command post is established ashore, control will be exercised by the landing force commander through a tactical air direction center ashore.

Tactical Air Observation Net

The tactical air observer operates in the tactical an observation net (TAO) and transmits his "play by play" descriptive reports of such action as takes place under his observation over the TAO net. Battalion and regimental TACPs seldom have occasion to transmit over this net but they can gain valuable information from monitoring it. The TACPs may request strike results from the tactical air observer (TAO) over this net. During the assault phase, the TAO net supplies the majority of the information by which the commander, not yet ashore, can keep abreast of the tactical situation.

A schematic sketch of the close air support communications nets employed by Navy-Marine forces during amphibious operations is shown on page 33.

Operating Bases

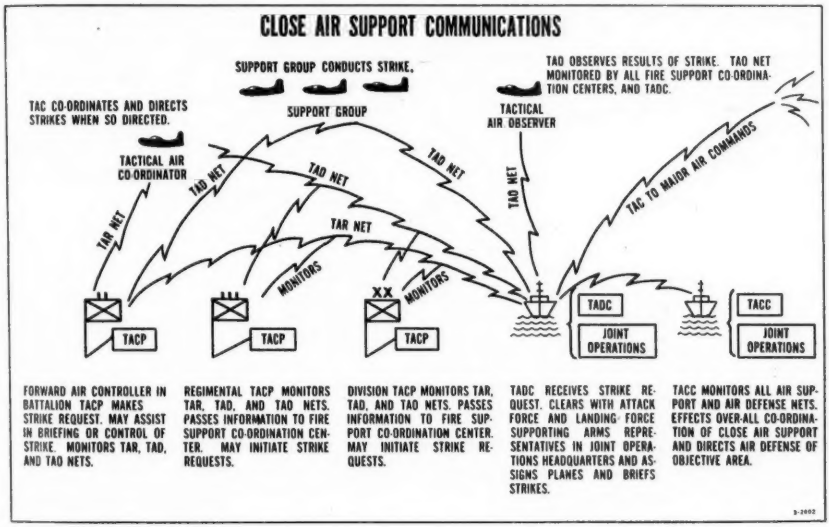
In discussing close air support for amphibious operations, we must assume that we are able to enjoy sufficient air superiority in the objective area so that our close-support aircraft will not become involved in a fight for their own existence to the extent that they will not be able to perform their primary mission of supporting the ground troops. In order to accomplish this, the planners for the operation must provide sufficient aircraft to accomplish both missions; as well as to protect the bomber formations, isolate the battlefield, and ensure the accomplishment of other important tasks.

In any amphibious landing on a hostile shore, one of the primary problems is that of providing sufficient aircraft to do all of the jobs which are required. If the landing is to take place in an area which is adjacent to an area under friendly control —in which we have air bases already established—the problem is not so difficult. However, if our landing is to take place on a hostile shore which is separated by distances which are too great for land based supporting aircraft to be used, then the problem of furnishing enough aircraft to support the ground troops is more difficult.

In most of the landing operations in the Pacific during World War II, close air support was furnished by carrier based planes. If there are enough carriers available to accomplish all the necessary air

missions, it is advantageous to have carrier based aircraft furnish close air support to the landing forces because the aircraft carrier can get close to the area of operations, and, therefore, the aircraft can carry a greater load of destructive materials and stay over the objective area longer. Further, with the operations aboard an aircraft carrier as compact and as rigid as they must of necessity be, once the planes are airborne they normally remain airborne, and consequently near the objective area, until such time as they have expended their ammunition or are scheduled to be returned to their carrier. Therefore, the ground commander will have a larger number of planes in the air over the objective area for close air support missions than would normally be the case if he were provided air support from ground bases. It is true that the carrier might, under exceptional conditions, have to move away from the immediate objective area, thereby causing a temporary interruption of some close air support or causing the carrier to launch its planes some distance away from the objective area. However, it should be remembered that close air support was furnished continuously during the most critical phases of the Japanese *Kamikaze* attacks during the Okinawa campaign.

Probably the best example of close air support being furnished from ground bases was during the Normandy invasion. All of the close-support aircraft operated from England, approximately 100 miles away. Because of the time required to get to the objective area and to return to their home bases, the close-support aircraft were able to remain in the objective area for a relatively short period of time. In this particular case, it did not detract from the support furnished to the ground forces as there was no shortage of close-support type aircraft for that operation and there was a minimum of interference from the German *Luftwaffe*.


CLOSE AIR SUPPORT COMMUNICATIONS
SUPPORT GROUP CONDUCTS STRIKE.
TAC CO-ORDINATES AND DIRECTS STRIKES WHEN SO DIRECTED.
SUPPORT GROUP
TACTICAL AIR OBSERVER
TAO OBSERVES RESULTS OF STRIKE. TAO NET MONITORED BY ALL FIRE SUPPORT CO-ORDINATION CENTERS, AND TADC.
TACTICAL AIR CO-ORDINATOR
TAD NET
TAD NET
TAD NET
TAD NET
TAR NET
TAC TO MAJOR AIR COMMANDS
MONITORS
MONITORS
XX
TACP
TACP
TACP
TADC
JOINT OPERATIONS
TACC
JOINT OPERATIONS
FORWARD AIR CONTROLLER IN BATTALION TACP MAKES STRIKE REQUEST. MAY ASSIST IN BRIEFING OR CONTROL OF STRIKE. MONITORS TAR, TAD, AND TAO NETS.
REGIMENTAL TACP MONITORS TAR, TAD, AND TAO NETS. PASSES INFORMATION TO FIRE SUPPORT CO-ORDINATION CENTER. MAY INITIATE STRIKE REQUESTS.
DIVISION TACP MONITORS TAR, TAD, AND TAO NETS. PASSES INFORMATION TO FIRE SUPPORT CO-ORDINATION CENTER. MAY INITIATE STRIKE REQUESTS.
TADC RECEIVES STRIKE REQUEST. CLEARS WITH ATTACK FORCE AND LANDING FORCE SUPPORTING ARMS REPRESENTATIVES IN JOINT OPERATIONS HEADQUARTERS AND ASSIGNS PLANES AND BRIEFS STRIKES.
TACC MONITORS ALL AIR SUPPORT AND AIR DEFENSE NETS. EFFECTS OVER-ALL CO-ORDINATION OF CLOSE AIR SUPPORT AND DIRECTS AIR DEFENSE OF OBJECTIVE AREA.
3-2002

We have considered amphibious operations for which close air support was furnished entirely by one service, the Navy-Marine team. The possibility of this sup-

port being furnished by both the Air Force and the Navy-Marine team for the same operation cannot be overlooked. If they were to operate under different systems, technical operational problems might arise which we will not attempt to discuss here. Obviously two separate systems could not be used efficiently in one operation. The fact that the two services do have different systems may add an additional training burden on the already complicated problem of preparing for an amphibious operation. Accordingly, because of the over-all composition of the forces involved in an amphibious operation, its specialized nature, and the requirement for expeditious close air support for the units in the assault, the Navy-Marine system of close air support is normally utilized for amphibious operations in preference to the presently existing Army-Air Force system.

Summary

In our examination of the close air support system as it is used in amphibious operations we have seen that it is not materially different from the air support furnished for normal ground operations. The principles and functions are generally the same for both type operations. Most of the techniques, terminology, and communications nets are also similar.

The main points of difference are:

1. In a Marine division there are 13 TACPs permanently assigned as an organic part of the division, whereas a fixed number of such teams are not always provided for Army divisions which participate in amphibious operations.

2. In Navy-Marine amphibious operations the tactical air direction center (TADC) normally assigns aircraft to carry out air request missions, whereas in normal ground operations this function is retained at the next higher echelon, the tactical air control center (TACC).

3. Requests for all air support missions —reconnaissance and supply, as well as offensive air support—are forwarded to the TADC over the existing air support communications nets, whereas in the Army-Air Force system these missions go through Army communications channels to the Joint Operations Center, with separate systems used for preplanned tactical missions, for immediate tactical missions, and for supply missions.

4. Under the Navy-Marine procedures, requests for tactical air support go direct from the TACP to the TADC, which ensures speedier, and, therefore, more effective close air support for ground units.

Finally, it should be remembered that:

1. In amphibious operations each assault battalion in Army assault divisions should be furnished TACPs far enough in advance of the operation that they can be adequately trained with the division.

2. During the early phases of a landing on a hostile shore, the ground combat forces are completely dependent upon naval gunfire and close-support aircraft to furnish their supporting fires, and, therefore, every possible step should be taken to ensure that these fires are delivered as promptly and as accurately as possible, and in sufficient amounts to influence the battle situation ashore.

I believe firmly—and I think the Soviets realize—that the United States, if forced to total mobilization today, could meet and win any military challenge.

President Dwight D. Eisenhower

A NEW STRATEGY FOR KOREA?

Brigadier General S. L. A. Marshall

This article is reprinted from THE REPORTER, 3 March 1953.

The views expressed in this article are the author's and are not necessarily those of the Department of the Army or the Command and General Staff College.—The Editor.

ALTHOUGH Mao Tse-tung does not owe his power to his reputation as a military genius, in 1936 he wrote a textbook for the Red Army Academy which deserved a wider audience. *The Strategic Problem of China's Revolutionary Army* is not light reading for a week end in the country. It is a mixture of abstractions and concrete ideas, tactical maxims and philosophical platitudes.

However, there has not been a clearer definition of Chinese military intentions since the building of the Great Wall. Only, unlike the meaning of the Wall, which could be taken in at a glance, Mao's meaning was not understood by the outside world because his words were not read.

At one point, Mao noted that a good way to achieve deception is to make sure that in the initial stages of war the opposing side captures exactly the right prisoners. If that was not precisely what the Chinese Communists did on entering the Korean conflict in 1950, then what happened must be dismissed as an ingenious coincidence.

Further along, Mao pays tribute to the Brest-Litovsk negotiations as a pilot model for obstructionism by a revolutionary government when time is a main need. Stall them and confound them! So the Chinese knew what they were doing when they first sat down at the Kaesong table, while our side—knowing Brest-Litovsk only as a spot on a map where once upon a time Soviets and Germans parleyed—did not.

The main theme of Mao's treatise on war is that revolutionary governments can always afford a protracted defense because the sacrifice to strategic pressure from without is more than offset by consolidation of the political position within. As events have proved, this was not one of Mao's idle philosophical platitudes; it forewarned that Communist China would intervene in any foreign war where it might expect to outstay its opponent.

Whatever losses in territory are necessary, Mao said, are bargains when they become stepping stones to ultimate victory. The idea is hardly radical. Mao simply agrees with General MacArthur that there is no substitute for being the winner at the final bell. Follow now his musings on that subject: "A fool refuses to sleep and has no energy for the next day. In the market, a buyer must lose his cash to obtain his goods. If what we lose is territory and what we gain is victory over the enemy plus return and expansion of the territory, war is a profitable business."

Because this is a typical passage, it helps explain several things. On the face of it, this is such a silly way to write about war that no civilized staff college would have felt justified in taking Mao

As we are presently organized in relation to the enemy in Korea, we are man-poor and machine-rich. When mobility fails for lack of men, the contest is all in favor of the side which values human life the least

seriously. However, the military meat is still present amid the metaphorical hash. His repeated emphasis on victory and the necessity therefor must inevitably raise some questions about our own ability to understand the problem in Korea and the attitude of our main enemy toward it.

"Main enemy" means Communist China, not the Soviet Union. While it may have been good electioneering to say that the war is run by Moscow, it is simply not true. Communist China is the great opponent as the struggle stands, and neither the weapons supplied by the Soviet Union nor the auxiliary fanatics from North Korea could keep the war going 1 month if China were to quit. There would be nothing to resist the United Nations coalition if the Chinese Communists backtracked to the Yalu.

Therefore, it is to Communist China's doctrine that we should pay heed if we are to distinguish between a detour and the main road.

A Sound Proposition

Just as Mao's doctrine supplies the reasoning which, from Communist China's view, warranted the intervention and should have forewarned us of it, it hints at the terminal point: War is a "profitable business" only so long as it points toward eventual victory, with its fruits of territory and prestige.

There is nothing uniquely Communist or Chinese about that proposition. However, stating it underscores the fact that until now Communist China has found the Korean conflict a bargain. It has its victory with the prestige of having defeated a modern coalition that includes the world's foremost power. Mao's armies have squatter's rights on the territory of a greatly weakened neighbor. His own domain remains inviolate. The war has become a tactical stalemate for the United Nations side, but it has not been at any time a strategic stalemate for Communist China. Nothing has happened to indicate that in the end the prize will be physically wrested from Communist China—and, accordingly, nothing has happened to put an insupportable strain on the working arrangements between Communist China and the Soviet Union. From the view of both partners, the deal is still a sound one.

However, simple as the truth may be that the military credit of the Peking regime has never for a moment been in jeopardy, it counts for nothing so long as we will not see it. When the Chinese Communists acted like victors at Panmunjom, we mistook the confidence that comes of a superior situation for the bluff and bluster that frequently mask an inferior position. Why did the Chinese not walk off with their victory then, after we had effectively conceded it to them? The answer is not to be found in the prisoner-repatriation issue, which was simply seized upon to tie up operations as long as possible while the Communists took a reading of our long-term intentions. During the months the parley went on, the United Nations side continued to weaken its relative position along the front, encouraging in the enemy the belief that by fighting longer he could enlarge his victory.

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This was a major mistake because it discounted the basic principles by which war is conducted. Being more realistic than the people on our side, the Communists know that the object in war is not the prevention of killing, but victory, enhanced prestige, and greater organizing power when the fighting ends. To men like Mao, the lives of a million or so Chinese mean nothing compared to the furthering of their own position as top dogs in Asia. Mao says as much. Yet we persist in the illusion that these men must in time give up because Chinese Communists are dying along the front line and our weapons are deadlier than theirs.

Acceptance of Stalemate

Another myth of our own devising is the acceptance of stalemate as a tactical fact rather than as a condition in the American and United Nations mind. There has never been a true stalemate in Korea because we have never made a first-class effort there. We have fought the entire war on a shoestring.

In the early days of the war we took one great gamble that failed. Thereafter we have remained content to hold on with as little as possible. Instead of asking what must be done to gain mobility and stretch our power, we fold our hands and say it cannot be done anyway, and even if it could, it would change nothing.

Several reasons are advanced in justification of the limited effort. The North Atlantic Treaty Organization Council is not alone in singing "We Must Not Defend Ourselves into Bankruptcy"; the tune is a smash hit on Capitol Hill. Also, it is said that this is a United Nations conflict, and that we are only a large stockholder in a syndicate undertaking. However, this too is a delusion. If the conflict is won, it will be a famous victory for collective security; if it is lost, the beating will be taken by the United States, and our prestige will shrink the world over.

We are up against what the Duke of Wellington meant when he said a great power cannot have any such thing as a small war, though it is not acknowledged in the conduct of our affairs. We do not even budget for the Korean conflict; it is financed under the heading of "Miscellany" out of the petty-cash drawer. The main object appears to be to make the unpleasantness as painless as possible to the taxpayer. Public relations has been substituted for generalship. We have forgotten that in war just enough is never quite enough and that success is bought by the strength of one's reserves.

So it is that the Army is fretted by the desertion rate in the home establishment, though for the sake of economy its training structure has been converted into a network of replacement depots which give the young soldier no chance to form ties with a unit before he is introduced to a foxhole.

So it is that along the firing line in Korea, junior leaders are cheated of hard-won promotions because the Bureau of the Budget has tried to save money at the wrong point. So it is that amid the cry that the Eighth Army is short of certain types of ammunition, the manufacturers of the same ammunition are at a loss to understand why such inadequate use is made of available capacity. So it is that we wasted two critical years before deciding that the provision of more equipment to build a strong Republic of Korea (ROK) Army might be a sound investment, and so it is that we are now getting on with it only because of the argument that it is one way to save American lives.

The Discarded Book

When the artificial fog envelops all policies pertaining to organization for war, it is not remarkable that there is so little hard-boiled and realistic thinking about how to fight it to a decision. Yet war is generally fought forward, since the enemy

lies that way. The usual highroad to success is to collapse his works and smack his backsides. The main object is to beat him on the main battlefield, the place where he has staked his fortune.

At least those were the rules yesterday, although today we have thrown the book away. Let it be mentioned that giving communism a thorough beating in North Korea might be a main step toward liquidating present hostilities, and the response is a lot of shopworn argument about why it does not make military sense.

"Fighting in the north will strengthen the Chinese by lengthening our supply lines while shortening theirs." This is not necessarily true, since we control the seas. Moreover, the same argument would have invalidated almost every successful offensive plan in the history of war.

"We cannot win that way. If they are pushed into Manchuria, the Chinese Communists will fight back across the border." However, meanwhile, they will have suffered a first-class defeat. By attacking from their own soil, they would invite attack into it, which they do not seem to want.

"It is the attenuation of their communications which makes them vulnerable to our air attack." What nonsense! Reducing their rear area would make possible a more perfect concentration of our air effort.

"Our planes cannot attack their lines and bases in Manchuria"—and why not?

"It would not end the war." Who can be so sure about something that has not been tried? Mao wants victory; he is not likely to soften until he sees it slipping finally from his fingers.

"The Soviet Union might be provoked." The Soviet Union will not be provoked until the day it is ready for a third world war, and then no provocation will be necessary.

That is the list. The answers are academic and without military meaning if the United Nations cause has no real staying power and is now concerned mainly with foreclosing what some of its early champions have come to consider a bad business. However, the unwisdom of permitting large forces to become pinned down in a strategically profitless area is quite another argument. All we are looking at here is the question of how best to employ these forces toward decisive ends if the commitment is to continue.

Finding a sufficient answer to that question is now the main problem before the Eisenhower administration, and there are already several new roadblocks in the way. Increasing the defense budget is abhorrent to the new majority, but a bigger build-up cannot be achieved on fewer dollars. Further, because of manpower shortage, lack of reserves in the theater, and the scarcity of ready formations here at home, we cannot bring off a decisive concentration this year. The index, therefore, points to 1954, which is also an election year. To ask larger means now for an expanded military undertaking—which might bring success 18 months hence and then again might not—is a capital political risk. The President might nerve himself to it. But would his party follow him?

Educated Guessing

War planning, if it is to work, must be kept secret in main detail. So while President Eisenhower may have given some indication of his program in his State of the Union message to Congress, the pressure points will not be finally revealed until there is action at the operating end. That has not stopped the Washington press corps from making some educated guesses, based on President Eisenhower's rescinding of former President Truman's order to the Seventh Fleet. Some of the items include:

Chiang on Formosa, his quarantine ended, will be given increased training and material aid and will be encouraged to

spread many alarms while being held back from any major excursions for a while, at least.

More military supply will go to the French in Indochina to increase the pressure from that quarter.

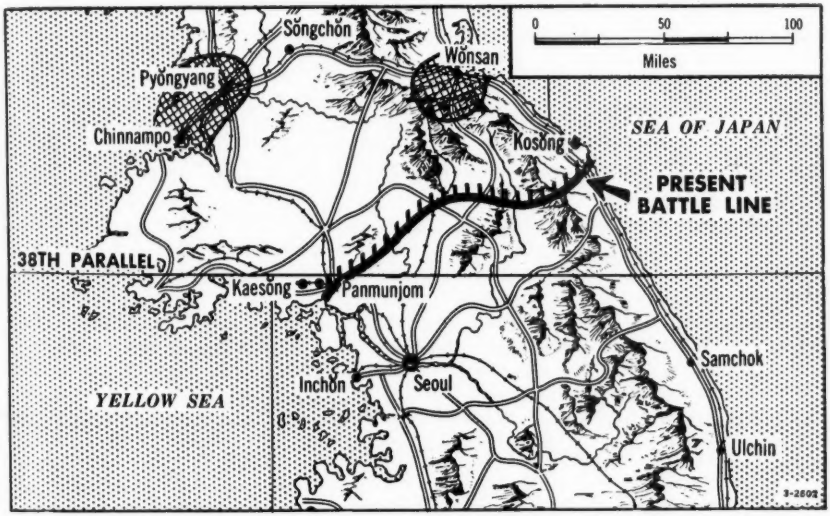
More Americans, possibly three to four divisions, will be sent to Japan and held there in readiness.

The China coast will be put under naval blockade.

There may be bombing of rail lines, bridges, canals, and other communications in the Chinese interior.

The clairvoyance of this forecast cannot be guaranteed. However, if it is anywhere near the truth, it scarcely promises a new era of firmness. Rather, like the Fairy Queen in *Iolanthe*, it makes our weakness more besettingly strong. There will be a build-up of material means by a side that is impoverished for fighting men. We shall spread ourselves around more, even though we are already faltering for lack of concentration. Against an enemy who has already proved that he will not be bluffed, we will threaten more and spring less. By the slowest means known to warfare, blockade, we shall attempt to hasten victory over an opponent who is not dependent on sea commerce.

Some correspondents have already gone into raptures over these measures. Maybe it is again time to quote from Mao: "What is decisive is not determined by general considerations. In military operations, the selection of the direction and point of attack is based on the present situation of the enemy and the terrain. When supplies are plentiful, care should be taken against overeating; where there is a shortage, the only problem is how to overcome hunger."



Nothing has happened in the conflict's development to discredit the view that North Korea is the decisive battlefield. There is no reason not to believe that we could win it by adding four to five full-strength divisions, so that the Eighth Army would dig itself out and get mobile.

To employ the new units frontally against a fortified line would be risky and foolishly wasteful when, by exploiting our one supreme advantage—amphibious power—we could turn the barrier

and at the same time force the enemy either to stand in the open or to flee. To reach once again for the Yalu would be not less foolish, because of the length of the frontier, and equally because a decision cannot be won there if it cannot be forced farther to the south where the peninsula narrows and the ground is suitable to defensive organization.

Finally, if an amphibious maneuver were to be attempted, we should get away from conventional defense in line. Atomic development has deprived it of any real future, and in the Korean laboratory we should be evolving tactics that will also serve tomorrow.

Twin Tobruks

Defense by bulkheads, or expanded beachheads, with fortified perimeters enclosing the base establishment along each coast, is the pattern that fits the situation. One block could enclose Wonsan, with the opposite block enclosing the Pyongyang-Chinnampo area. (See the map on page 39.)

No field force would be needed to hold the interzone ground, which is rough and largely roadless country. Along that alley, air interdiction would be given its main chance to neutralize a canalized enemy force. If lesser methods fail to discourage the enemy, it might be the suitable time and place to undertake atomic counterattack, after warning the civil population.

On the west coast the tides make landings more difficult, but a bulkhead there would cover the main supply routes through Seoul and to the south. On the east coast, port facilities have been smashed flat. But in past wars we have taken pride in the engineering genius and material resources that enabled us to overcome far greater obstacles than these.

All this is easier said than done, and none of it is possible if the nation is still looking for a riskless course. To expand the enterprise would require an increase in mobilization and all other costs, which includes the blood price paid for a major battle. The alternative is far greater cost over a long term, not only in dollars but in lives, national prestige, and resolution here at home—all this for a slow-burning conflict which in the end we probably would not win.

What we now attempt is not our kind of contest. As we are organized in relation to the enemy, we are man-poor and machine-rich. When mobility fails for lack of men, the resulting contest of attrition is all in favor of the side that values human life less. "While the game of matching pearls is nothing between two dragon gods of the sea, it is ridiculous between one beggar and one dragon god." So wrote Mao.

The strife in Korea is one small but tangible segment of a very large movement to throttle the free world. Our nation is embarked upon an endeavor of unprecedented scope to help a relatively defenseless free world to gain strength to resist aggression and concurrently to gain strength itself.

Lieutenant General Orval R. Cook

BEACHHEAD

A NEW form of warfare on a large scale came into being during World War II—the amphibious assault. The term "beachhead" has become a synonym for this type of operation in which troops are landed on a foreign shore and grasp a foothold in enemy territory.

Today, along thousands of miles of American coast lines, "beachheads" are being established by United States armed forces during amphibious maneuvers. These training exercises are carried out under conditions similar to those which would be experienced in combat. An objective is selected, a plan for its capture is made, a preliminary rehearsal is conducted, and then the operation is undertaken.

On "D-day" at "H-hour" the attack begins. Thousands of troops arrive at the objective area in transports and are taken to the beach in various landing craft such as amphibious tractors, DUKWs, and rubber rafts, as well as helicopters—the newest member of the assault team. The troops disembark from the transports, climbing down cargo nets into the waiting assault craft.

When the craft has its allotted load, it pulls away from the transport, going to a predetermined location where it circles until the assault wave is ready. Then it begins its run to the beach.

As the men hit the beach they take cover—reforming their units and establishing contact with command posts. Then they head inland toward the enemy.

In their advance, the troops knock out any beach defenses which survived a pre-invasion naval and aircraft bombardment —blockhouses, pillboxes, machine gun nests, mortar emplacements, and fortified strong points. Surprise amphibious landings—called end runs—are made farther up the coast in order to keep the enemy forces from concentrating strong opposition at any one point.

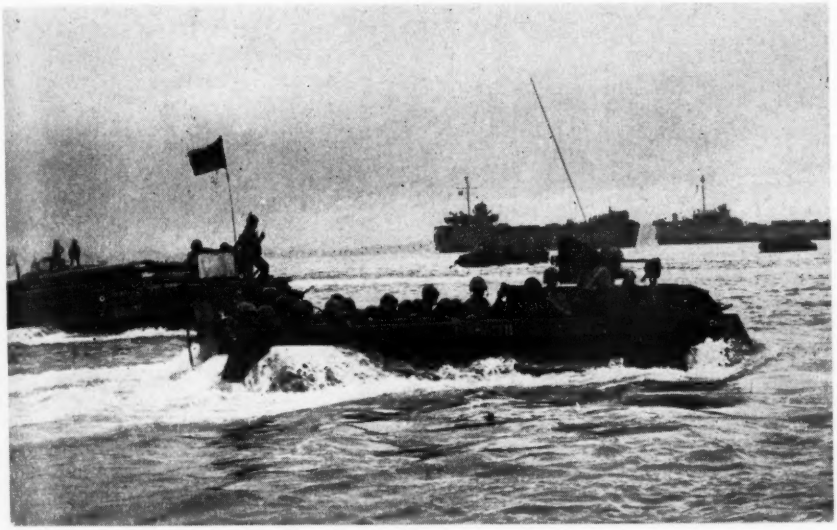
Once the shore party has engaged the enemy and the initial landing is safe from counterattack, helicopter-borne troops are landed behind the enemy forces to begin an enveloping movement which will lead to the destruction of opposition to the established beachhead. Through the use of walkie-talkie communication and aided by maps, the airborne units are able to obtain a clear picture of the advancing beach assault and the best location to close the trap on the enemy forces.

Designated soldiers in the assault force simulate casualties during the maneuver and the medics render treatment exactly as they would under combat conditions. The wounded are returned to the offshore force in landing craft as soon as possible. Casualties behind the enemy lines are evacuated by helicopters.

Simulated battle conditions exist during all phases of the amphibious-airborne assault. Every soldier who participates in the maneuver is well-trained and ready for the "real thing." The Armed Forces of the United States are creating a high degree of technical development in the art of assaulting a "beachhead" through these mock-assaults.

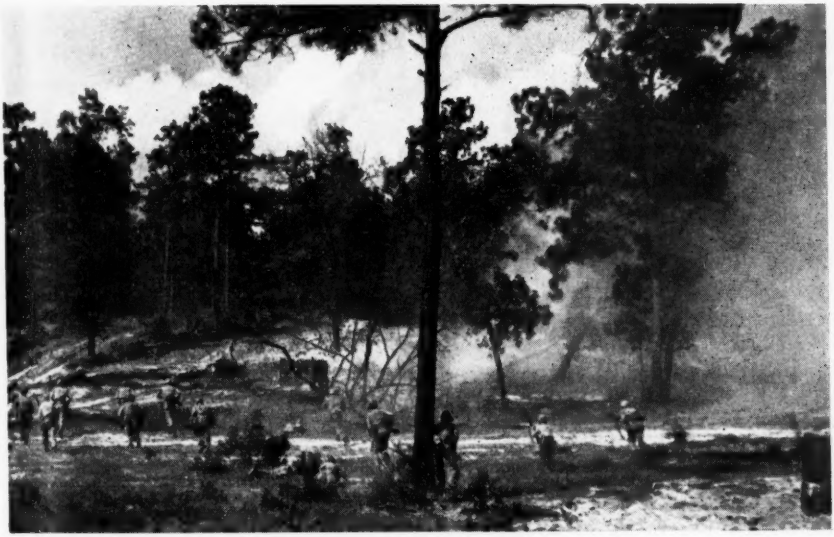
United States armed forces are creating a high degree of technical development in the art of assaulting a beachhead by utilizing the experience gained from the numerous amphibious landings of World War II

The term "beachhead" has become a synonym for the type of operation in which troops are landed on a shore and grasp a foothold in enemy territory. Above, an assault wave wading ashore to establish a beachhead. Below, soldiers making a dry run in the art of disembarking from a transport by using a cargo net.—Department of Defense photos.



When the amphibious attack begins, troops are taken ashore in various landing craft such as amphibious tractors (AMTRACs), DUKWs, and rubber rafts. Above amphibious tractors loaded with assault troops, making the run to the beach. Below, assault troops dashing for the beach as the landing craft reaches shore.—Department of Defense photos.

As the troops hit the beach they take cover, reform their units, and establish contact with the command post before they head inland toward the enemy. Above, amphibious troops taking cover upon reaching shore. Below, a bazooka team going over the backs of buddies to get through barbed wire entanglements.—Department of Defense photos.



In their advance, the troops knock out the beach defenses—blockhouses, pillboxes, machine-gun nests, and mortar emplacements while fighters cover the rear areas against possible counterattacks. Above, assault troops moving up after knocking out fortified strong points. Below, jet fighters covering the beachhead.—Department of Defense photos.

Helicopter-borne troops are landed behind the enemy forces to begin an enveloping movement once the shore party has engaged the enemy and the initial landing is safe from counterattack. Above, troops jumping from a hovering helicopter. Below, helicopters returning with reinforcements for an established unit.—Department of Defense photos.

Designated assault soldiers simulate battle casualties and the medics render treatment exactly as they would under combat conditions. The "casualties" are evacuated either by landing craft or helicopter. Above, a medic "treating" a simulated casualty. Below, medics evacuating simulated casualties by helicopter.—Department of Defense photos.

AERIAL PHOTOGRAPHY
AN ARMY PROBLEM

Lieutenant Colonel Ernest Samusson, Jr., *Infantry*
Instructor, Command and General Staff College

The views expressed in this article are the author's and are not necessarily those of the Department of the Army or the Command and General Staff College.—The Editor.

A DEPARTMENT of the Army observer team returning from Korea said, substantially, "There is a lack of full appreciation and considerable room for improvement in obtaining maximum benefit from aerial photography by Army tactical units." Most commanders will deny this, saying the only "lack" involved is in the photographs themselves. Yet, this very scarcity of photographs is caused by a "lack of appreciation" in the Army as a whole. Few know just what they want of a photograph, and fewer still know how to get it. A discussion of the Army's needs, what is being done to meet these needs, and what can be done to overcome present failures in the use of aerial photography are the main purposes of this article.

Historical Example

On 9 September 1943, the United States Fifth Army began its landings at Salerno, Italy. Elements of the British X Corps entered Naples on 1 October 1943. Since the Volturno River afforded the enemy a good position for the organization of a defense line, the X Corps ordered the 46th Infantry Division and the 23d Armored Brigade to leave Naples on 2 October, reach the Volturno, and seize and secure a crossing at Cancello. On their route, about 12 miles north of Naples and 4 miles south of Cancello, was Villa Literno. (See Figure 1.)

Two Italian maps of this particular area were available to the 46th Infantry Division. These maps differed in more than scale; one map did not show a railroad which was certainly of importance to any military operations within the area.

An aerial mosaic of the area was prepared which provided a mass of information which no map, regardless of the details, could reflect. Thus, the aerial photograph supplemented the map and also served as a source of intelligence information.

A comparative analysis of photographs taken at frequent intervals between January and September 1943 showed that Villa Literno had been fortified. The summation of several months' study of Villa Literno was presented to the Commanding General, 46th Infantry Division, in a photo interpretation report represented by Figure 2. The text of this report explained that in each of the single circles was a pillbox and in each of the double circles was a casemate. The report was accompanied by a defense plan which presented the interpreter's analysis without the photographic background. Several large-scale annotated photographs showed in detail the various portions of the fortified area. *

* The accuracy of the report was verified later when the 46th Infantry Division took the town and inspected the fortifications.—The Editor.

The Commanding General, 46th Infantry Division, on the basis of the photo interpretation reports, decided to bypass Villa Literno instead of running headlong into its defenses. Once bypassed, the garrison surrendered without a struggle.

Photographic Cover

The foregoing historical example exemplifies the two most important uses for aerial photography by the Army: first, to supplement information contained on a map, and, second, to provide a source of intelligence information.

A third use of the aerial photographs is in the preparation or revision of maps.

This discussion will be limited to those photographs intended for use as map supplements or as a source of intelligence since it is these photographs which pose the greatest problem for the Army.

The photograph is said to *cover* that ground area it portrays. Thus has evolved the custom of referring to the photographs desired as "cover desired." Many adjectives have been employed with *cover* to describe or limit the types of photographic cover. From the Army point of view photographic *cover* can best be divided according to its intended use. Such a division will enhance the understanding of the purpose of the photographs and simplify planning.

Thus the Army is primarily interested in three types of cover: *mapping cover*, *basic cover*, and *intelligence cover*. This classification and the broad characteristics of each as described below do not agree entirely with official publications; in fact, these publications do not agree among themselves. As has been said, this classification is suggested as a method to simplify planning, at all levels, and to enhance an understanding of the purpose of the photography.

All photographs are essentially intelligence documents. Therefore, classing basic cover separate from intelligence cover might be questioned. This was done mainly because of degree and use. Basic cover information is general in nature and may be obtained by anyone, while intelligence cover aims to obtain specific information of the enemy or terrain under enemy control.

Mapping cover as the name implies is photography taken for the purpose of preparing or revising maps and charts. Since the primary interest of this discussion does not include this field, no further remarks concerning this type of cover will be made.

Basic cover is provided to supplement the information of terrain and works of man which are shown on a map. From this standpoint, the term *basic* is not descriptive. However, considering that photographs in this category may form the basis for comparative analysis or are the basis for further requirements, the name is appropriate. This type of cover may be current or noncurrent seasonable photography capable of being used as stereopairs. The photographic scale will depend upon the terrain or available photography, usually 1:12,500 or larger will suffice.

Intelligence cover includes all types of photographs used in the production of intelligence. The most common types of photographs in this class are front-line cover, reconnaissance and route strips, night photographs, dicing photography, and special large-scale verticals and obliques. All vertical photographs should be stereopairs. The scale depends entirely

Commanders and staff officers must learn to use aerial photographs intelligently. This ability involves an understanding of the Army's requirements, and how they best can be fulfilled with the tools available

upon the ability of the interpreter to interpret them. For satisfactory results the scale is seldom *smaller* than 1:10,000.

Before the end of World War II, three main problems in the Army's use of aerial photographs were evident, namely:

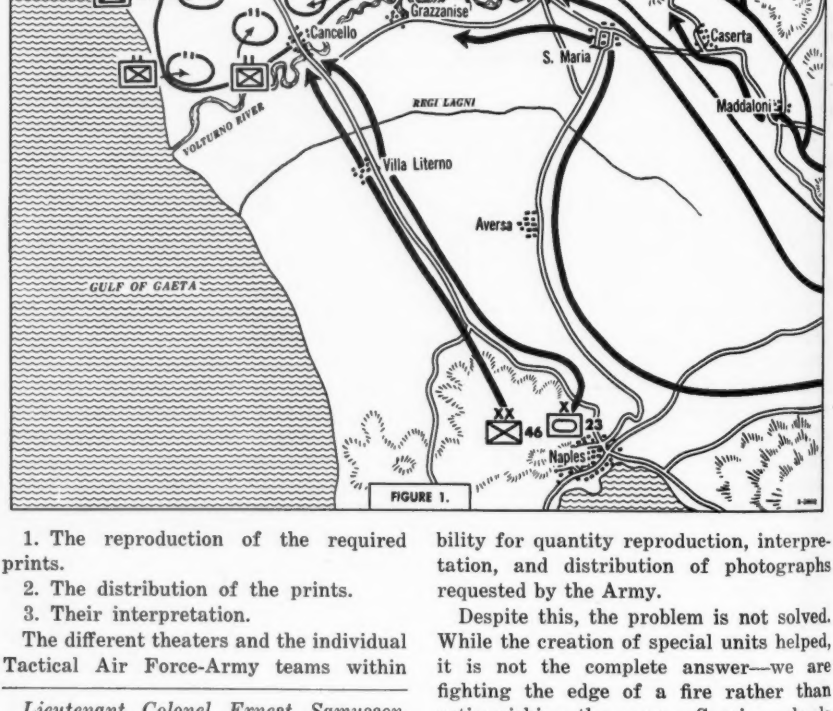


FIGURE 1.

1. The reproduction of the required prints.
2. The distribution of the prints.
3. Their interpretation.

The different theaters and the individual Tactical Air Force-Army teams within the theaters approached these problems in many different ways and with varying degrees of success. To correct the deficiencies found as a result of World War II, the Air Force and the Army agreed that the Army would assume the responsibility for quantity reproduction, interpretation, and distribution of photographs requested by the Army.

Despite this, the problem is not solved. While the creation of special units helped, it is not the complete answer—we are fighting the edge of a fire rather than extinguishing the source. Service schools have continued to extoll the virtues of the aerial photograph and, with but few exceptions, have tended to create the illusion of a panacea, thus increasing the demand. The solution is dependent on the removal of our rose colored glasses. The Army must (1) determine its requirements (not desires) for aerial photographs and (2) teach its personnel how to exploit the aerial photograph. Why?

Lieutenant Colonel Ernest Samusson, Jr., was with the 6th Infantry Division in the Pacific area during World War II. In 1946, he served with the G2 Section, Headquarters, Army Ground Forces, and subsequently with the Organization and Training Division, Department of the Army. From 1949 to 1950, he attended The Infantry School, Fort Benning, Georgia. In 1951, he served in Korea as G2 (Air) and Assistant G2, I Corps. In 1952, he graduated from the Command and General Staff College and is presently serving as an instructor at that College.

A Hypothetical Situation

Consider the situation of the Thirtieth Army occupying a 60-mile front. The army is preparing to attack in zone and effect crossings over the Rhine River between Mainz (exclusive) and Speyer, seize

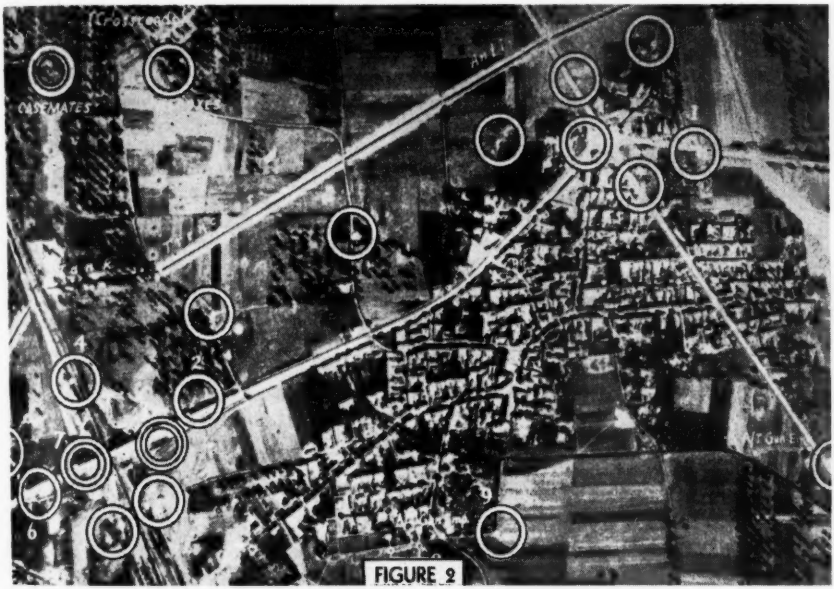


FIGURE 2

that portion of Frankfurt south of the Main River, and be prepared to continue the attack to the north and east. Assigned to the Thirtieth Army are 3 corps consisting of 10 divisions and 2 divisions in reserve. (See Figure 3.)

The Thirtieth Army by current doctrine can expect quantity distribution of basic cover of its zone and limited amounts of intelligence cover.

The photo reconnaissance plan for the army is summarized in Figure 4. This plan was formulated to give maximum desired intelligence coverage while remaining within the capability of the reproduction unit. To provide the cover shown it will require an average of 4,024 negatives daily. From these a total of 19,116 prints will be made daily, as shown in Figure 5.

At this capacity the daily output of the reproduction company would amount to 650 pounds of photographs having a volume of 16 cubic feet, or a stack of photographs 18 feet high. (It will be noticed that only *six* sets of front-line cover are reproduced. Most publications specify *eight* sets as being required. In the final analysis the number of sets reproduced will depend upon the capability of the reproduction unit. As will be shown in this and the next two paragraphs, a reproduction capability of 25,000 contact prints daily, as has been specified for the reproduction unit of a field army, will be exceeded. Furthermore, it will be the exception rather than the rule that such quantity reproduction is *necessary*. Later in this article it will be shown that *six sets*—distributed on the basis of *two* copies at army level, *two* copies at corps level, and *two* copies at division level—will suffice.)

For quantity distribution in the desired amounts the Thirtieth Army requires 78 sets of basic cover.* (See Figure 6.) Present doctrine states that basic cover will extend from the front lines to a depth of 100 or more miles into enemy territory. Considering the minimum depth of 100 miles and the desired overlap to give

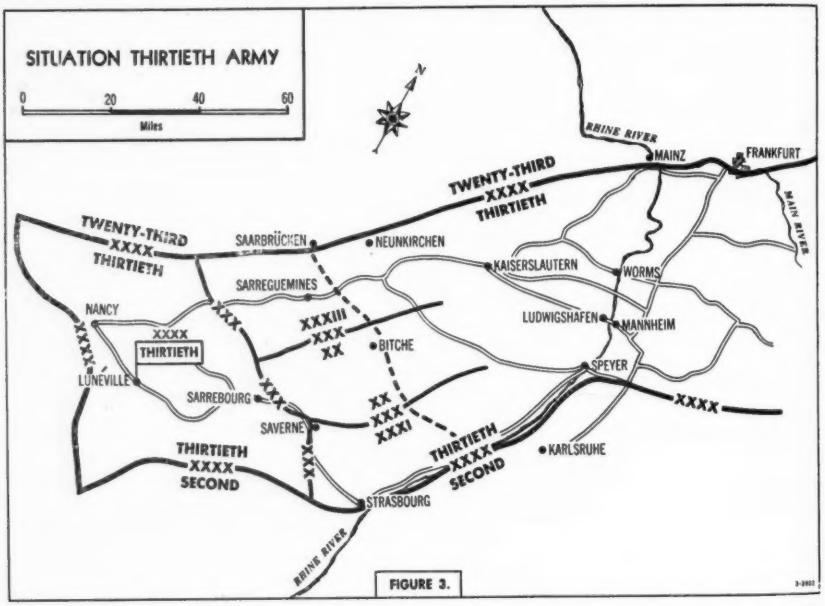


FIGURE 3.

stereopairs, it will require 8,094 photographs to provide 1 set of the desired cover. For the initial distribution to the army and its units (78 sets) a total of 631,332 prints are required. These prints will weigh approximately 10.7 tons and have a volume of approximately 537 cubic feet. In terms of time, based on the normal rated capacity of the reproduction company, it will require more than 25 days to make these prints. (Note: The reproduction company can produce prints for short periods at a peak capacity of 50,000 a day. If this rate could be maintained the production time would be reduced to 12 days.)

However, the Thirtieth Army has been active in the line for some time in this situation, therefore, it can be assumed that the initial distribution of basic cover has been made and that it is only necessary to supply sufficient prints to maintain the desired level of distribution. Anticipating shifts of units (assuming that two divisions in army reserve will be committed) the total number of sets for the army area is fixed at 58. Based on an average advance of 2 miles a day, 9,860 prints daily will be required to maintain the established levels. Therefore, to meet the army's requirements for basic and intelligence cover, the reproduction company will be required to produce 28,976 prints daily. (Contact prints in this quantity will weigh approximately ½ ton and have a volume of 24.6 cubic feet.)

* Basic cover is not to be confused with front-line cover. Basic cover is old cover—front-line cover is new cover used for intelligence.

SUMMARY OF PHOTO RECONNAISSANCE PLAN, THIRTIETH ARMY

Number	Name	Daily	Every 2 days	Semiweekly	Weekly	Nightly	Fortifications and Activity	Fortifications and Crossing Sites	Rail and Highway Activity
1	Front-line Cover	X					X		
2	Rhine River		X					X	
3	Kaiserslautern			X			X		
4	Landau			X			X		
5	Frankfurt			X			X		
6	Darmstadt				X		X		
7	Heidelberg				X		X		
8	Wurzburg				X		X		
9	Aschaffenburg				X		X		
10	Kaiserslautern (RJs)					X			X
11	Bridges Mainz					X			X
12	Bridges Worms					X			X
13	Bridges Mannheim					X			X
14	Bridges Speyer					X			X
15	Marshalling Yards Darmstadt					X			X
16	Marshalling Yards Heidelberg					X			X
17	Marshalling Yards Wurzburg					X			X

Number	Name	Area Covered, Miles	Average Scale	Total Photographs	Photographs 1 day
1	Front-line	60 x 15	1:10,000	1,908	1,908
2	Special (Rhine River)	65 x 5	1:8,000	1,152	660
3–9	Special (Other)	70 x 10	1:5,000	5,928	1,256
10–17	Night	90 x 1	1:8,000	200	200

FIGURE 4.

This quantity is in excess of the normal capability of the reproduction company by approximately 3,976 prints and can be maintained only for limited periods.

The foregoing has served only to point out the quantities of reproduction involved. From the weights and volumes which were quoted, conclusions can be drawn as to the distribution difficulties. For the skeptics, two additional items should be mentioned. The weights quoted are approximates for the finished 9- by 9-inch contact prints only; to process these prints will require in the neighborhood of 1¼ tons of chemicals and water. Washing the prints will require additional water. This in itself poses no small supply problem. Furthermore, when placed beside the daily requirement for an army, ½ ton of photographs is negligible, but photographs are not handled as routine supplies.

Type of Photography	*Number of Negatives Daily*	*Number of prints/ Negative/Day*	*Total Number of Prints*
Front-line cover	1,908	6	11,448
Special (Rhine River)	660	5	3,300
Special (Other areas)	1,256	3	3,768
Night	200	3	600
	4,024		19,116

FIGURE 5.

To be of value, photographs must be timely—for intelligence cover, timeliness is measured in hours. Which means, for example, that the Thirtieth Army signal officer must make a special delivery to each corps of 214 pounds of photographs daily. To ensure timeliness, this delivery must be by special air courier to each corps and down to each division of the corps.

So far, no mention has been made of the third problem—that of interpretation. Based on the number of intelligence photographs to be received by each division in the foregoing situation, the photo interpretation officers at the division (if working around the clock) can spend approximately 10 minutes for each photograph for interpretation, annotating, and initiating reports. Other tasks required of the team such as receiving, breaking down, and distributing photographs; plotting; and preparing defense overlays and photo interpretation reports will be performed by other members of the team. Although at corps and army level there are more interpreters, the foregoing figure would probably change very little since the number of photographs involved is greatly increased. Assume, for example, that the Thirtieth Army's photo interpretation detachment at the joint air photo center (JAPC) has 25 officer interpreters. Working around the clock, the air photo-interpretation detachment (APID) can spend approximately 8 minutes for each photograph for all phases of interpretation.

Requirements

In general, the foregoing is the problem. How can it be solved? First, by determining the requirements for aerial photographs. To do this, we must decide

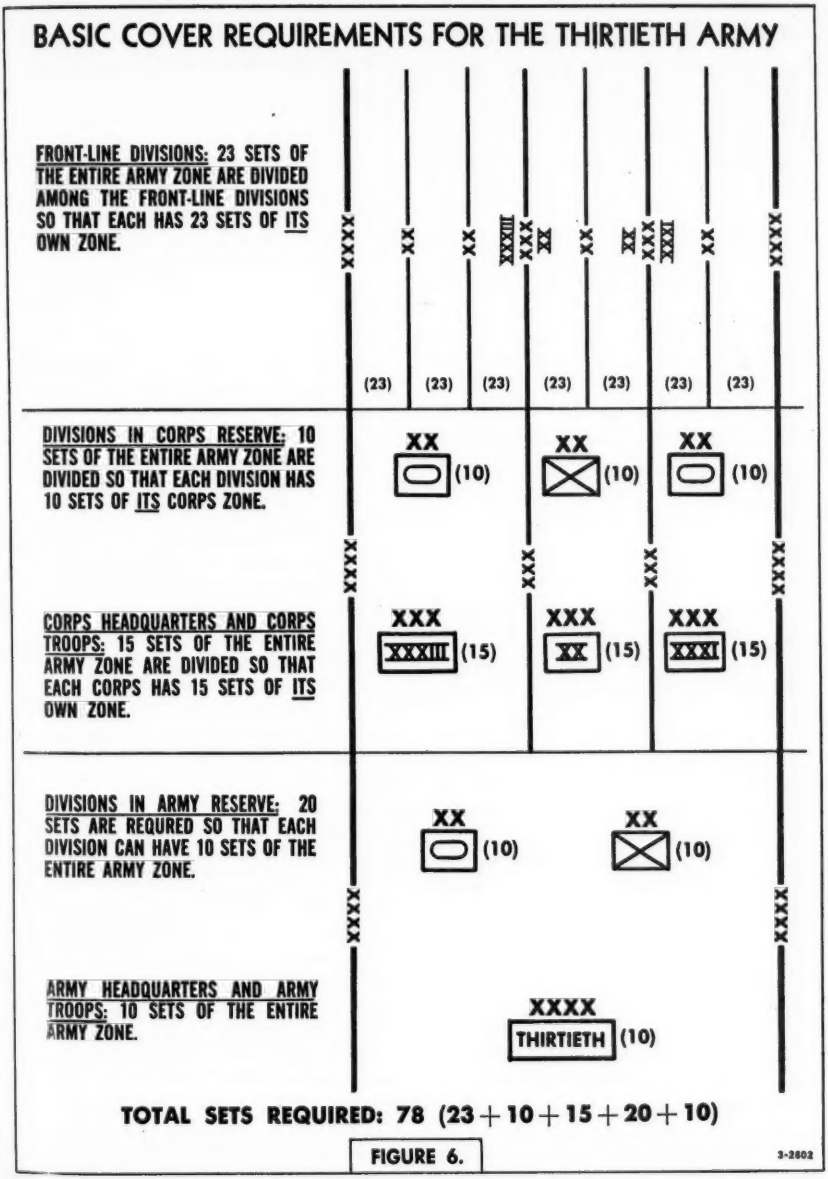


FIGURE 6.

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what we want of the photograph, and, then, what will give us what we want. The commander wants two things from a photograph:

1. *Information of the terrain;* that is, detailed map information.
2. *Information of enemy activity.*

Basic Cover

The first, *information of the terrain,* is for the most part obtained by reading the photograph. It is for this purpose that basic cover is intended. The information on these photographs is much more detailed than that found on the map; further, the information is more timely. In the historical example, it was pointed out that the two maps used by the 46th Infantry Division during the Italian campaign of World War II differed on such a fundamental feature as a railroad.

A study of Figure 2—an aerial photograph of the same area which was covered by the maps used by the 46th Infantry Division—will reflect the many valuable items of information which could not be shown on a map. The small ditches which formed the boundaries of the fields, the orchards, and the trees were easily identified on the photograph but were not shown on the map. The value of such a photograph, with its detailed information of houses, streets, and alleys, to a unit which had to fight its way into the town is apparent. It is also apparent that anyone trained in reading the photograph can obtain this information.

With these points in mind, it is well to re-examine our requirements for basic cover. It is needed and in sufficient quantity for distribution to the units on the ground. It should be seasonable to be of value—that is, if you are fighting in an area in August you want photographs which show the trees in foliage, not photographs taken in January with snow and bare trees. Stereopairs are desirable to battalion level but are seldom used below that echelon and here the degree of overlap can be reduced.

Finally, a contact print is not required; any form of reproduction which will provide clear definition is acceptable. Two things combine to dictate the scale. First, the time required to reproduce the prints necessitates that dependence for basic cover be placed on existing photography.

As an example, the selection of basic cover for the 12th Army Group's drive across Europe during World War II was begun 6 months prior to D-day. Furthermore, the terrain will influence the scale. Rough terrain which throws numerous shadows will normally require a larger scale photograph than will flat or gently rolling terrain. As a general rule, however, a scale of 1:12,500 will suffice.

Intelligence Cover

Information of enemy activity is, for the most part, obtained by specially trained personnel interpreting what they see on the photograph. It is for this purpose, and to obtain a more detailed terrain analysis, that intelligence cover is provided. The fact that a specially trained person, the photo interpreter, is essential to translate the information shown on the photograph must be acknowledged and borne in mind when establishing the required characteristics of the photograph desired. For example, look again at the annotated print, Figure 2. Were it not annotated, the only purely military information the average person would pick up is the antitank ditch just north of the town—it is doubtful that any of the circled items would attract attention. Yet to the interpreter, they meant the strong point that was Villa Literno. Interpreted and annotated, the photograph becomes invaluable intelligence to the unit assigned to take a position. Uninterpreted, the photograph is no more than a map supplement for which purpose basic cover is provided. With this in mind, then, what

is needed in the way of intelligence cover? The cover requested should be dictated by the number of interpreters available, as well as the need for information of activity in the area. The amount, in terms of number of copies, must be dictated by the location of the interpreters.

The photograph must be current and available for interpretation within a matter of hours after it is taken. Stereopairs of photographs with the best definition are essential. This requirement for "definition" is best filled by a contact print from an original negative. The scale will be dictated by the ability of the interpreter to obtain the information desired; this in turn is controlled primarily by two factors: the training (skill) of the interpreters and the terrain—that is, the more rugged the terrain the larger the scale required. For this type of work, therefore, an average scale cannot be given. Often a scale of 1:10,000 is used, and this I believe is the minimum. Seldom will the desired results be possible with a smaller scale.

Exploit the Photograph

The next step which must be taken to solve the problems facing the Army is to exploit the photograph. This is largely a matter of training—training of the interpreter, the intelligence officer, and the individual commander or staff officer. In the production of intelligence from most sources or agencies emphasis is placed on the upward flow of information. Photo intelligence proceeds in the opposite direction—from the higher to the lower levels. This fact requires the maximum effort on the part of all concerned to ensure that information is received by subordinates in time to be of value. Fundamentally, however, exploitation of the photograph can best be shown by the Thirtieth Army situation previously outlined. *Six* copies of front-line cover are reproduced daily. Of this number, *two* sets are delivered to divisions, each division receiving cover of its zone. How should these be distributed? A set could profitably be used by the division artillery to assist in selecting targets and planning counterbattery fires. The division artillery has organic photo interpreters to extract this information. Frequently the second set will be given to the infantry battalions on the premise that it is the

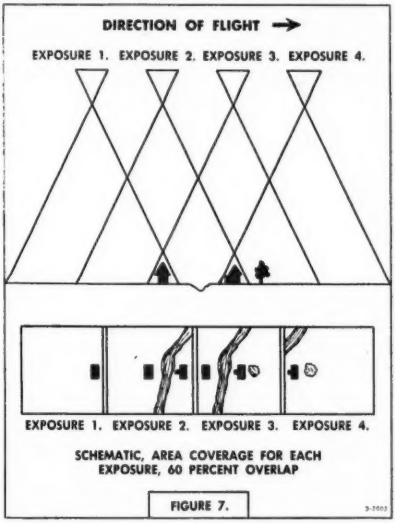

DIRECTION OF FLIGHT
EXPOSURE 1. EXPOSURE 2. EXPOSURE 3. EXPOSURE 4.
EXPOSURE 1. EXPOSURE 2. EXPOSURE 3. EXPOSURE 4.
SCHEMATIC, AREA COVERAGE FOR EACH EXPOSURE, 60 PERCENT OVERLAP

FIGURE 7.

agency most closely concerned with the strength, disposition, and activities of the enemy to the immediate front. This fact cannot be denied. Therefore, it is recommended that this *intelligence* be given them, not the photographs.

Giving the battalion the photographs provides only an additional set of basic cover; for the battalion commander does not have the means of extracting the enemy information which is pictured. It is preferable to give the photographs to the division photo interpreters and then give the resulting information to the battalions. Depending upon what is found, this may be a written report or the annotated

photograph. Only when this is done has the subordinate commander been provided with the intelligence that he wants and can use.

Immediately one question arises—if only two sets of cover are received at the division, how can two assault regiments with two assault battalions each be given annotated prints? There is no rule which requires the artillery photo interpreters and those at division headquarters to work separately—in fact there are many advantages to their working in close coordination. For observed fires, the photograph may be of inestimable value to the observer, especially if it is annotated. However, for unobserved fires, physical possession of the photograph is not essential after the photo interpreter has located the target. From an artillery standpoint, therefore, the location or co-ordinates of the target are the important thing.

The division, therefore, has, with two sets of photographs, at least four pictures of the area to its front and portions of the area are covered six times. (See Figure 7.) Careful distribution of pertinent photographs should provide the commanders of those units concerned with an annotated print. As inferred above, exploitation of the aerial photograph pertains primarily, but not entirely, to intelligence cover. Exploitation of basic cover is achieved when it has received proper distribution, and when commanders are trained to read and use the photograph.

Planning

To exploit the photograph requires close co-ordination with the Air Force, joint planning, and an efficient Army organization. Planning at all levels is essential. Your next higher headquarters must be informed of your needs. Generally speaking, basic cover requirements should be planned at the army group level. Front-line cover requirements should be planned at the army level. Despite this, the subordinate units are not freed of the responsibility. They must acquaint army or army group with their requirements for these types of cover as well as any other cover which may be required from time to time.

Purpose

The key to planning is the purpose for which the photograph is intended. The best photography for a specific purpose can be produced only if the primary purpose for which it is intended is known by those who take the picture, reproduce it, and interpret it. This purpose will help determine such problems as frequency of cover, scale, quantity, when the information or photographs must be available, and the time of day the photographs should be taken.

If the photography cannot be interpreted, do not ask for prints. State the purpose and ask for the information desired. In this way you may be assured of getting what you want, not just a picture. In November 1950, a division on the line in Korea was a few miles short of an important road junction. At this time it was felt that the Chinese Communist Forces were using the road at night in their suspected build-up. The division, justifiably, requested night photographs of the area. What they wanted to know was whether the road was being used and, if so, as much about its use as possible. For this from three to six prints of the photographs were requested—one would have sufficed. In fact, as will be shown later, the information could be obtained without the prints.

Scale is always a three-way compromise. First, the interpreter must have it large enough to interpret. Second, increasing the scale increases the number of pictures required to give the desired cover, thereby increasing the load on the reproduction, distribution, and interpretation system.

Third, increasing the scale frequently requires an unacceptable risk to the pilot and the plane by requiring a mission at lower altitudes. However, a scale too small to accomplish your purpose is a complete waste.

Although this discussion deals primarily with aerial photography as provided by the Air Force, it would be remiss to ignore the Army's organic capability. The potential of the Army's organic means cannot and should not be ignored. It is mentioned under planning because here is where every possible facility for obtaining what is required should be considered. One word of caution, since the advent of the light plane we have enjoyed a high degree of air superiority and in most places have been relatively free from antiaircraft fire. A change in these conditions will certainly seriously affect our ability to exploit organic photography. Nevertheless the Army has the potential and should use it. Quantity wise or quality wise it will not compare with photography provided by the Air Force. However, for specific targets or objectives, organic means are available to provide close-support photography in limited quantities in time to be of tactical value. Time here can indeed be measured in hours and in fact, with the *Polaroid-Land* type cameras, may be measured in minutes.

The photographic capabilities of the Air Force far exceed the Army's ability to reproduce prints. Seldom will it be possible to reproduce all the prints desired. The frequency, the scale, and the quantity of prints, all combine to create the major problems to reproduction. The Thirtieth Army's request for front-line cover involved 1,908 negatives and 11,448 prints daily. Front-line cover provided once every 3 days—or, if it were winter, after each snow fall—should be adequate in this situation. The scale requested by Thirtieth Army was 1:10,000; a scale of 1:5,000 would require 4 times as many photographs. Reproduction so far has dealt with contact prints—these are heavy, bulky, and expensive. In addition, large quantities of chemicals and water are used in the reproduction process. Research on other methods of reproduction should be continued. At present, prints from lithography and the diazo type printer appear satisfactory for basic cover. That a material savings is possible is emphasized when it is realized that: 25,000 contact prints will weigh approximately 3 times more than lithograph prints, have over twice the volume, cost over 15 times as much, and will require over twice the weight in materials exclusive of water to reproduce.

Interpretation

The value of the photograph is not realized until it is interpreted. The sooner the interpreter receives the photograph, the more quickly will the desired information be extracted. However, to be effective, the interpreter must have a thorough knowledge of the situation and the planned operation; he must have readily available other intelligence material; he must have a thorough knowledge of enemy tactics and a general intelligence background; and above all he must realize the importance of his findings to the unit required to take the ground. The volume of photographs will necessitate that priorities of interpretation be established. All photography requested should receive an immediate interpretation at the JAPC. (Immediate interpretation is the review of photographs to answer specific questions applicable to immediate operations—a comparative analysis with older photography is not normally practiced. Enemy activity in process at the time the picture was taken and uncamouflaged positions are the types of information obtained.) Detailed comparative analysis is performed as prescribed.

Corps artillery (for counterbattery in-

formation), the corps G2, and the division should establish and maintain liaison with JAPC. This liaison, consisting of a minimum of one officer and one enlisted photo interpreter from each unit, will aid materially the receipt of timely and useful information by the units. Such liaison teams would be constantly aware of the requirements of their units. Sufficient personnel exists so that they could be rotated between JAPC and their units as frequently as desired—monthly rotation is recommended. The value of such liaison may be shown in the case of the corps artillery. Immediate interpretation of front-line cover at JAPC would be made from prints furnished by the Air Force or at the latest from the first prints, while still wet, made by the reproduction company. The immediate interpretation should be completed before the required reproduction is completed. In any event, an immediate report could be received at the corps by electrical means long before the prints are delivered to the corps. Equipped with a copy of the "enemy battery list," the corps artillery's liaison officer can begin a detailed study to confirm or deny these locations. Further, an interpreter from JAPC who picks up an object which he cannot identify immediately can call it to the attention of the liaison officer concerned. The liaison officer can begin a more detailed study of the area and a comparison with previous photographs, thus saving valuable time.

Intelligence officers and commanders must be willing to accept the reports of JAPC. Here again the presence of a liaison officer will help to establish confidence. To illustrate this point, let us assume that night photographs are requested of an important road junction in front of a corps. The corps' reason for making the request was to ascertain if, at the time the photographs were taken, there was any enemy activity in the area. Such information can be obtained from an immediate interpretation at JAPC. The report can be in the hands of the corps intelligence personnel before the photographs, so why ask for several prints of the photographs, thereby increasing the load on the reproduction and distribution system, as well as on the corps interpreters?

A photograph cannot be interpreted by just any one. It requires special training to make an interpreter and even then he makes errors. For example, early in the Korean operation, experienced interpreters occasionally identified the typical Korean grave as a pillbox. What is important is the information from the interpreted print. This information can be provided only by trained interpreters. If you have no photo interpreters and need a picture of the latest enemy situation to your front, then ask for an annotated print. Do not insist that current photography be used as basic cover, the situation of the Thirtieth Army should have shown that such a request is unreasonable from the standpoint of reproduction, and it is completely wasted from the standpoint of getting maximum benefit from the photograph.

Dissemination

Success or failure of photo intelligence lies in dissemination. Emphasis throughout training is on the upward flow of information. In photo intelligence, all information originates at the higher level and must be passed on to the lower level. Time is of the essence. From the ground liaison officer's (GLO) interrogation of the returned reconnaissance pilot until the ground covered by the photographs is captured, the burden is on every echelon to ensure that its subordinate units receive the information. Dissemination is in many forms, from the electronic message from JAPC giving the co-ordinates of a newly located artillery position, to the complete booklet detailing the defense,

communications, and resources of an objective area. The form is dictated by the needs of the recipient. To the division commander, a series of overlays accompanied by a verbal or written report outlining the defense positions and the terrain may be ideal; but to the platoon leader a photograph with a grease pencil circle and the initials "MG" is the answer. On the other hand a radio message "CR 96 is mined" is welcomed by the tank commander who is en route to the area. The higher the echelon, the quicker the source (the photograph) is received. The higher the echelon, the more facilities (interpreters) are available. The higher the echelon, the more time is available. The subordinate can only request. The higher echelon must fulfill that request.

Distribution

Second to dissemination in importance is the distribution of the photographs. As has been implied, it will be impossible for JAPC to make a detailed interpretation of all photographs. Subordinate units must be required to complete a detailed interpretation of the photographs they request. For this reason, as well as to provide commanders with the means of answering other questions which may arise, photo interpreters are assigned to divisions and corps. It is obvious that photographs received after the area has been taken will be of little value. To be of value photographs must be received in time to allow unit interpreters to make an interpretation and the resulting information reach the commander in time to be of use. For this reason, the photograph is not handled as routine supplies nor can it be handled in a routine manner through message center.

The army signal officer must be called on to deliver prints by air directly to divisions as well as to corps. If for some reason Army aircraft cannot be used, arrangements for the delivery of prints by the Air Force must be made. Extravagant? On the surface, perhaps; but actually, no! If the print is not received it is worthless. It is penny wise and pound foolish to spend thousands of dollars to have a mission flown and prints made; then in an effort to save a few dollars on transportation fail to exploit the value of the photograph.

A phase of distribution which is frequently overlooked is the transfer of photographs from the relieved unit to the relieving unit. This is only common sense, it frees the relieved unit of carrying around photographs of an area it is no longer concerned with and ensures that the incoming unit will have photographs of its new zone.

Summary

This discussion has dealt entirely with the Army. It has been general and touched only on broad aspects of the employment of aerial photographs. It was not the intention to leave the impression that the Air Force is entirely free from criticism; it is not. The Air Force must be willing to fill the Army's requests and to keep the reconnaissance fields far enough forward to facilitate the Army's distribution. However, before criticism is aimed at someone else, it behooves the Army to ensure that its own house is in order. The photographic capabilities of the Air Force far exceed either the ability of the Army to reproduce prints or to exploit the photograph. The basic framework for meeting the Army's needs is present in the air-ground operations system of the Army, however, before satisfactory results can be achieved, the Army must take a realistic view of its requirements and the type of prints necessary to meet these requirements. Personnel, especially commanders and staff officers, must be taught how to use and exploit the photograph. This involves a recognition of the Army's requirements, how they can be met, and the tools available.

Conclusions

1. Other than for mapping purposes, the Army needs aerial photographs to supplement map information and as a source of intelligence. General characteristics of this photography are:

a. Map supplement, termed basic cover, which may be noncurrent, but must be seasonable prints of good definition. They should be stereopairs with a minimum scale of 1:12,500. They need not be contact prints as long as the process of reproduction gives good definition.

b. Source of intelligence, termed intelligence cover, which must be contact prints made from an original negative of current photography. Stereopairs are essential. The scale will be determined by the purpose for which the photography is requested. No minimum or average scale can be stated.

2. Basic cover should receive quantity distribution. The 23 sets prescribed for a front-line division are adequate.

3. Intelligence cover need not be distributed in quantity. Distribution should be governed by the location of the photo interpreters. One or two sets for each division is normally sufficient when basic cover has been previously distributed.

4. As a rule, the information, not the picture, is the important thing. Dissemination of this information is essential and is an obligation of each higher headquarters to its subordinates.

5. Training of all personnel must, in addition to extolling the virtue of the photograph:

a. Emphasize the Army's responsibilities.

b. Acquaint all with the problems involved in meeting a request for aerial photography.

c. Show that interpretation is essential if the value of the photograph is to be realized.

d. Emphasize the obligation inherent to all headquarters for dissemination.

e. Show the need for using and keeping track of photo interpreters.

6. All divisions and corps should establish and maintain liaison with the army component at the JAPC.

7. Research and development on methods of reproducing both basic and intelligence cover should be continued.

Today the citizen can no longer regard the defense of the nation as something remote from his daily life—something to be delegated to the military and then forgotten, or something that can be left undone until the last minute. It is a problem that we must solve if our great nation is to endure and retain its freedom as inherited from our forefathers.

Brigadier General Charles E. Loucks

MILITARY NOTES AROUND THE WORLD

UNITED STATES

Streamlined Periscopes

Streamlined periscopes now being installed on the Navy's front-line submarines will allow the underwater ship-killers to move faster without detection while scanning the sea for targets.

Experiments have proved that streamlining periscopes cuts down tell-tale splashing, or pluming, of the "up" periscope on the fast-moving submarine. Sleek lines also keep the periscope from vibrating, a problem which has "blinded" the sub's "eye" at high speeds.—*Science News Letter.*

'Underwater Wings'

The Navy disclosed recently that it was experimenting with boats equipped with "underwater wings." Technically the wings are known as "hydrofoils." They have surfaces similar to an airplane's wings. Fitted to the bottom of small craft, they raise the hull out of the water when sufficient speed is attained. When the boat is supported by the hydrofoil, the result is less water friction and more speed.

So far, the project is entirely experimental, but the Navy said that "hydrofoils are expected to be applicable to various boats and small craft."

An experimental German hydrofoil boat constructed during World War II attained a speed of 50 knots.—News release.

Navy Trainer

The Navy's new advanced single engine trainer—the *T-28B*—recently completed its first test flight.

Although basically the same as the Air Force *T-28A* trainer, the Navy version has

The Navy's new *T-28B* advanced trainer.

a more powerful engine and a three bladed propeller, giving it a top speed of 346 miles an hour, compared with 283 miles an hour for its predecessor.

The 25,600-foot service ceiling of the Air Force trainer has been extended to 35,500 in the *T-28B* and its additional power will enable it to clear a 50-foot obstacle after a take-off run of 1,250 feet compared with 1,780 feet for the *T-28A*. —News release.

Starfire

A pointed, elliptically shaped plastic radome has replaced the former bulb-like nose of the 600-mile-an-hour-plus *F-94C Starfire*—the Air Force's newest all-

The *Starfire* fitted with pointed radome.

rocket plane (MILITARY REVIEW, Oct 1952, p 64 and Mar 1953, p 64). The change-over to the pointed radome resulted in a 5-mile-an-hour speed increase for the all-weather *Starfire*.—News release.

Malaria Cure

A new malaria cure in the form of "daraprim," a drug which has given indications of being the most effective agent ever used in the treatment of malaria, is now undergoing tests by the Army.

Army physicians now use two drugs in fighting malaria. Chloroquine, a suppressant, must be given in weekly doses or malaria will show up in men attacked by the relapsing form of the disease. A second drug, primaquine, is given to prevent relapses. Daraprim, however, gives indication of both suppressing and curing malaria, the Army says.

Prisoners at a Federal penetentiary, who volunteered for experiments with daraprim, showed no signs of malaria after being infected a year earlier by malaria-carrying mosquitoes.—*All Hands.*

Television

A method of sending scrambled television pictures during wartime recently received a patent. The new system presents a jumble of light on television screens unless the receiver is equipped with an oscillator to straighten out the picture.—*Science News Letter.*

Automobile Production

The nation's automobile industry will produce an estimated 12 billion dollars worth of civilian cars and trucks and replacement parts this year.

In addition, it will account for several billion dollars worth of military goods—tanks, aircraft and aircraft engines, and cannon and other weapons—and an undisclosed amount in top secret items.

The figures for civilian goods are wholesale valuations and are estimates from authoritative sources. They give emphasis to the almost fabulous expansion the industry has undergone since World War II. The highest dollar volume attained by the car makers in the prewar era was slightly under 3½ billion dollars, attained in 1929.

That was the age of a somewhat larger dollar value. One could buy an automobile then for less than half what would be paid today. Yet unit volume of vehicles and replacement parts today is running well over twice the average of the years before World War II.—News release.

Ultrathin Steel Alloy

Sheets of nickel-alloy electrical steel one-twentieth the thickness of a human hair are filling a specialized demand in electronics. Rugged and reliable, the new metal is finding uses in radar equipment, the "memory" sections of mechanical "brains," and in radio vacuum tubes.

It becomes electromagnetized in about one-millionth of a second.

Although it costs only a few cents a foot, per pound it is more expensive than gold.—*Popular Mechanics Magazine.*

Rescue Boats

The Navy recently awarded a contract for the construction of twenty-one 40-foot wooden rescue boats.—*Army Navy Air Force Register.*

Portable Television Transmitter

A suitcase-size television transmitter has been developed to speed spot news to video screens. Moreover, for persons who live in a mountain-locked community, it may mean that television signals can be snatched from the skies and sprayed down to antennas in the valley. However, someone has to figure out how to make it pay.

The television transmitter plugs into ordinary household electric current. It takes the picture from the camera in the form of electric impulses, and then beams both picture and sound to a receiver.

This means that a bad airplane crash in an out-of-the-way place can be televised from the spot, and can be relayed back to the nearest station scores of miles away. There it can be fed into the network for national telecasting.

The system can be reversed to pick up television programs from a far-away station and rebroadcast them locally.—*Science News Letter.*

Network Television

Network television recently marked its fifth anniversary.

On 1 May 1948, when commercial network service was first begun, 12 stations in 5 cities were connected by 916 miles of television channels.

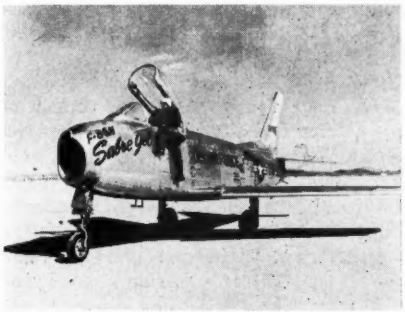
In the last 5 years, this has been extended to 34,000 miles, enabling more than 130 stations in 87 cities to receive live network programs.

Some 13,000 channel miles are planned this year. These lines would go far toward providing network connections for the remaining 40 television stations now on the air, but not supplied with cable connections.—*The Kansas City Star.*

More Powerful Sabre

A new and more powerful *Sabre* jet fighter—the *F-86H*—recently completed its first flight.

The new *Sabre* is a completely new airplane designed to carry out dual missions as a fighter bomber and a day fighter.



The latest model *Sabre*—the *F-86H*.

Slightly larger than current *Sabres*, the "H" is the fifth and latest in the *Sabre* series.

The *F-86H* is powered by a *J-73* jet engine, which incorporates many advances in design engineering with considerably more thrust, yet has the same frame size as the older models.

Sabre improvements resulting from combat experience remain restricted, but the Air Force announced that the "H" has a clam shell type canopy, a sturdier landing gear, and improved suspension and release mechanisms for carrying droppable wing tanks in conjunction with bombs and rockets for its fighter-bomber role. It also carries six .50-caliber machine guns.

All controls of the "H" are hydraulically operated with an all-movable horizontal stabilizer replacing elevators for greater pilot control as in the *F-86E*. However, it will be somewhat larger.

The *F-86H* is in the 650-mile-an-hour class, has a combat radius of more than 600 miles, and a service ceiling of more than 45,000 feet.—News release.

Ceramic Brakes

Fired clay is the main ingredient of a brake lining which withstands the terrific heat caused by the sudden stop of a jet plane or transport. The lining meets the need for a brake which could stop 17 tons of plane in 20 seconds from a ground speed of 135 miles an hour.—*Popular Mechanics Magazine.*

Navy AJ-2

The *AJ-2 Savage,* advanced version of the carrier based *AJ-1* Navy bomber, recently completed its first test flight.

Capable of delivering an atom bomb from either carrier or land bases, the three-engine, 25-ton *AJ-2* is the Navy's largest carrier based bomber. It is powered by two *R-2800* reciprocating engines and a *J-33* turbojet. The *Savage* carries a crew of three and operates at speeds up to 425 miles an hour.

External changes in the *AJ-2* configuration include a higher vertical stabilizer and a horizontal stabilizer without dihedral. The fuselage is approximately 2 feet longer than the *AJ-1.* Internally, the cockpit has been rearranged to provide one large compartment for the three-man crew instead of two smaller compartments as in the *AJ-1.*

The *AJ-2* has a span of about 75 feet, is more than 65 feet long, and 21 feet high. It features folding wings and verticle stabilizer to facilitate handling and storage below deck.—News release.

AFROTC Students

The Air Force has announced that beginning with the school term this fall it will give priority for enrollment in the Air Force Reserve Officer Training Corps to students who start flight training upon graduation from their schools.

Previously all students were accepted for the AFROTC program regardless of their desire to follow up with flight training to qualify as pilots.—News release.

Field Uniform

A new field uniform is being tested by the Air Force which may some day replace the present fatigue uniform. It is light green in color and is composed of five pieces—shirt, trousers, jacket, and summer and winter hats.—*All Hands.*

Aviation Vocabulary

The Educational Research Corporation has prepared for the Civil Aeronautics Administration a preliminary draft of a vocabulary for use in international aviation communications, designed to provide a language which can be offered from ground stations throughout the world in all language zones and used universally from air to ground. The aim is to make this aviation language intelligible and clear against background noises, easy to learn and to pronounce, and structurally simple. The preliminary draft contains 800 English words and will be submitted to pilots and other potential users for study and suggestions.—News release.

Army Strength

The Secretary of Defense has announced that the Army will add 4 new antiaircraft artillery battalions—making 117 in all—and rebuild the strength of its 20 divisions and 18 regimental combat teams during the next 10 months. At the same time, Army strength will be reduced to 1,421,000 men.—*Army Times.*

Air Force Helicopter

The Air Force soon will take delivery of a *YH-31* helicopter, a utility version of a rotary wing plane that made its initial flight in April of this year. The new helicopter is equipped with a "constant" clutch that allows the engine to be warmed up without having the rotor blades revolve.

Powered with a 400-horsepower engine, the *YH-31* can carry four litters or six passengers in addition to the pilot and copilot.—*The New York Times.*

Pinpoint-Bombing Trainer

An electronic machine has been developed for the Air Force to increase the pinpoint bombing skill of experienced bombardiers.

The complex instrument makes it possible to "bomb" actual targets anywhere in the world without leaving the ground.

The trainer uses a large relief map of the area being "flown" over by the plane. The map, representing a 360,000-square-mile area, is submerged in a tank of purified, temperature-controlled water.

A simulated radar antenna is submerged in the water and emits ultrasonic sounds instead of regular radar waves. The antenna represents the plane's antenna as it scans the countryside below.

The student watches the progress of the plane on his radar scope. When the target is reached, he can release his "bombs" in the customary manner. He can see on his instruments a corresponding view of what he would see if he were actually flying a bombing mission.

While all this is going on, the machine makes records showing the flight path of the plane, the time the bombs were released, and the curve followed by the falling bombs. In figuring out the bomb curve, the machine takes the wind speed into consideration. The records can help the trainee improve his accuracy.

The key to the machine lies in the fact that ultrasonic waves travel through the water only 1/200,000 as fast as radar waves speed through air. By using the water tank and an ultrasonic "radar" antenna that slowly moves through it, engineers could shrink the map to 1/200,000 the size of the area it represents.

Ultrasonic waves behave in the water exactly as radar waves behave in air. They are bounced back by the features of the relief map. They are converted into a conventional picture which the bombardier sees on his radar screen.—*Science News Letter.*

Bull Moose

A massive bulldozer tractor has been developed for operating scraper equipment and for use by the military as a prime mover.

The machine—called the *Bull Moose*—is 11 feet 7½ inches high and 22 feet 9 inches long, and weighs 51,300 pounds with the dozer and cable control unit. It travels at a top speed of 25 miles an hour towing a 65,000-pound load.

The massive *Bull Moose* bulldozer tractor.

The drive mechanism is four-wheel. The two side wheels, front and rear, are geared together. By means of hydraulic power steering both sets of side wheels may be controlled simultaneously or independently. Braking may be used for steering.

A 300-horsepower diesel engine provides power for the tractor, with a torque converter and semi-automatic transmission and heated cab as additional features.—*The Military Engineer.*

'Space Ship'

The Air Force has announced that it plans to complete this year a stationary "space ship" for research into pilot problems of high flight. It will consist of a sealed cabin in which atmosphere conditions at altitudes of 100,000 feet or better can be simulated.—*The Christian Science Monitor.*

PAKISTAN

Cement Plant

Pakistan will use a $1,400,000 grant from New Zealand to build a cement factory at Hyderabad.—News release.

POLAND

Steel Plant

The Government has ordered top priority for all phases of construction on a huge steel plant near Krakow. The plant, slated for completion by 1955, is being built to a large extent according to Soviet plans. Much of the machinery has been imported from the Soviet Union.—News release.

Rich Coal Area

Postwar Poland controls a coal basin that is one of the richest in the world, according to *Focus*, a publication of the American Geographic Society. The estimated reserves of the basin total 135 billion tons.

Polish coal production totals 80 million tons a year, twice the output of prewar Poland. Mechanical aids to mining are being introduced as rapidly as possible with the object of increasing annual production to 100 million tons by 1955.—*The New York Times.*

EGYPT

Military Nurses

Egyptian women will be allowed to enlist in the armed forces for the first time to serve as nurses. During their period of service they will be subject to military law.—News release.

BELGIUM

Armament Contracts

The United States has announced the awarding of contracts worth more than 36 million dollars to Belgian munitions firms. The contracts are part of the American offshore procurement program.—News release.

JAPAN

Ammunition

A Japanese export company has signed a contract with Thailand to export about $450,000 worth of tank ammunition, made by a Japanese steel plant. The 1951 Japanese Peace Treaty with the allies imposes no restrictions on the manufacture of armaments by Japan.—News release.

Dandelion Rubber

The Japanese Government has decided to experiment with Russian dandelions as a source of natural rubber. The newspaper *Asahi* stated that the trial program would be conducted in Hokkaido, Japan's northernmost and least developed island.

The rubber plant reportedly was discovered by a Russian expedition about 20 years ago in China's Sinkiang Province. Since that time the Communists have asserted they have had success in cultivating dandelion farms for rubber extraction. —News release.

SWEDEN

Underwater Power Line

A new high-tension electric transmission line will extend 50 miles under the Baltic Sea from the mainland to Gotland by this fall. The cable, planned to carry 10,000-volt current, is believed to be by far the longest underwater power cable in the world.—News release.

Trade Agreement

Steel products and machinery are among the items which Sweden will send to the Soviet Union under a new 15 million dollar trade agreement signed in Moscow.

The Soviet Union will sell Sweden asbestos, chrome and manganese ores, diesel oil, kerosene, and cattle fodder, while Sweden will export butter, rayon, wool, different kinds of iron and steel, concrete reinforcement steel, machinery, and other goods to the Soviet Union.

The pact is for 1 year.—News release.

NORWAY

Naval Academy

Norway will build a new naval academy at Barum, near Oslo, at a cost of $900,000. The institution will accommodate 160 cadets for a training course of 4½ years.—News release.

EASTERN GERMANY

Military Railway

Soviet authorities have ordered the construction of a new 217-mile military railway paralleling the East German boundary with the West, according to *Neue Zeitung*, the United States High Commission's newspaper.

The newspaper said that the line would connect Rostock, on the Baltic, with Halle, where the Soviet armed forces have large installations. Soviet engineers have arrived to supervise the project, which will be paid for by Eastern Germany.—News release.

Karl Marx Stadt

Chemnitz, a leading industrial center in Saxony, was renamed Karl Marx Stadt recently by the East German Government.

The Soviet-dominated regime also created a Karl Marx Medal as the highest award for merit in the fields of politics, economics, culture, and the building of socialism.

The Government took the decision in honor of the founder of Marxian Socialism. What it means is that a Germanic godhead of communism has been established in imitation of the Soviet deification of Lenin.

In the Soviet Union the second leading city bears the name of Leningrad. The highest national award is called the Order of Lenin.

Karl Marx now will be rated officially in Eastern Germany as the "greatest son of the German people" in the same way as the Soviet Union regards Lenin as the greatest son of the Russian people.—*The New York Times.*

CZECHOSLOVAKIA

Forces Reorganized

The Prague radio announced recently that the reorganization of the Czech Army on the Soviet pattern was "virtually complete."—News release.

Regain Rights

All Sudeten Germans living in Czechoslovakia who formerly possessed Czechoslovak nationality and who are still living and working in Czechoslovakia have had their Czech nationality restored by a law passed by the Prague Parliament. —*The New York Times.*

AUSTRALIA

Air Force Commands

The Royal Australian Air Force (RAAF) will be reorganized into a system of functional commands instead of the existing geographical area system, if a plan recommended by the Air Staff is accepted.

Under the new system the RAAF would be divided into three commands—Home Command, Training Command, and Maintenance Command. Introduction of the commands would be another step in the gradual decentralization of the RAAF and the streamlining of its administrative organization.—Commonwealth of Australia News and Information Bureau.

CANADA

Aid to Uranium Prospectors

An ultraviolet ray lamp is becoming the companion of the Geiger counter in the hands of uranium prospectors in Saskatchewan's northland.

Prospectors long have recognized the evidences of minerals exposed to the surface. These, acted upon by the atmosphere, often give vivid colors, such as cobalt blue and the green stains of copper.

Many of them, invisible to the naked eye, become fluorescent under an ultraviolet ray lamp. Uranium is one of these. —News release.

PORTUGAL

Arms Contract

United States and Portuguese officials have signed contracts within the framework of the Atlantic Pact for Portugal's manufacture of more than 21½ million dollars worth of munitions and ships.—News release.

COMMUNIST CHINA

State-Supported Trading Enterprises

The directors of a group of state-supported trading enterprises in Communist China have failed under the planned economy of the Communist system.

Bad buying in behalf of the state is the main trouble. A recent report in the Peking *Peoples' Daily* stated that stocks of unmarketable goods were so great that they presented a "very serious problem."

"At present," the official newspaper stated, "dead stocks and goods of inferior quality occupy from 20 to 31 percent of the entire circulating capital of the state trading departments."—News release.

Communist Directive

The Central Committee of the Chinese Communist Party has issued a directive urging all Party cadres to study parts of *History of the Soviet Communist Party* and selected writings of Lenin and Stalin on socialist economic construction, according to a report by the New China News Agency.

The study period, which will last until December 1954, is intended for leading cadres to acquire "systematic understanding" of the basic laws by which the Soviet Union achieved national industrialization, brought about the spread of agricultural co-operatives, and the completion of Socialist construction.

The directive said the study was intended to enable the cadres to apply the Soviet experience correctly to China's economic construction in light of China's specific conditions.—*The New York Times.*

WESTERN GERMANY

Army Volunteers

Western Germany has started registering 56,000 volunteers who have sent in applications to serve in the West German contingent of the projected European Army, according to an announcement by the National Defense Commission. However, the commission said none of these men would be put into uniform until all six member states had ratified the European Defense Community treaty.

Unsolicited volunteers have flooded the commission with applications since it became known that disarmed Western Germany would contribute to the European Army. Western Germany has promised to raise 500,000 men to serve with troops of France, Italy, Belgium, the Netherlands, and Luxembourg.—News release.

War Missing

The German Red Cross recently reported that there were still 1,300,000 Germans missing since the war. All but 100,000 disappeared in Communist-ruled Eastern Europe, mostly the Soviet Union.—News release.

Radio Transmitter

Germany returned to international broadcasting recently with the opening of "The German Wave," a short-wave radio transmitter that will broadcast to North and South America, Africa, and the Near and Middle East.

Some 8 years have passed since one by one the broadcasting stations of the Third *Reich* fell silent as invading armies poured across Hitler's Germany. The aims and methods of the new German broadcasts abroad are in sharp contrast to the strident propaganda of Joseph Goebbels' *Reichssender*. The new program, termed "the voice of the Fatherland," will give a "sincere and tactful" picture of social and economic developments in Germany.—*The New York Times.*

GREAT BRITAIN

Antitank Gun

A new recoilless antitank gun—one powerful enough to destroy the modern tank of 50 tons or more—has been developed in Britain and will soon be issued to field units.—British Information Services.

Shadow Fleet

Besides the 166 British ships on active service with the Royal Navy, Britain has a large "shadow fleet" which could be put into service on short notice.

Included in this are 47 vessels now used for training or other special duties, 322 in reserve or reducing to reserve, a large number of tankers and supply ships in the fleet train, attendant vessels, and innumerable "small craft."

There are also about 140 new ships being built for the Royal Navy, or for loan to allied navies. These include 8 aircraft carriers, 3 cruisers, 3 destroyers, 13 frigates, and 95 minesweepers.

Last year was one of planning and preparation. This year the results will be felt in a steady stream of new vessels.—British Information Services.

United States Air Force

An indication of the steady growth of the United States Air Force establishment in Britain was given recently in the House of Commons.

Replying to questions, the Parliamentary Under Secretary of the Air Ministry said that the expenditure on the construction of airfields for the United States forces had been more than 25 million dollars in 1951-52 and almost 31 million dollars in 1952-53. The estimate for the current year is almost 62 million dollars.

The Under Secretary also stated that the United States Government had borne one-half the cost of construction in the first 2 years and probably would bear nearly three-quarters this year.—*The New York Times.*

'Goliath'

A great hydraulic press, claimed the biggest in Europe, has been installed in a British factory to turn out large forgings for jet aircraft and engines. The new press, called the "Goliath," is capable of producing the vitally important light

Great Britain's giant hydraulic press.

alloy component parts to the high degree of tolerance demanded by engine designers. A quarter of its 56-foot structure is buried in an underground chamber.

The 800-long-ton "Goliath" gives working pressures of up to 12,000 long tons. It is fed by three gas furnaces, each of which has a capacity of 10 long tons.—British Information Services release and photo.

Atomic Electricity

Great Britain announced plans recently for building an experimental station to produce electrical power from atomic energy.—News release.

FRANCE

Twin-Jet Trainer

The *MS 755* twin-jet, light fighter-trainer aircraft recently completed its first flight at Melun Villaroche airfield.

In designing the *MS 755*, the aim was to evolve a training machine which would reproduce the characteristics of a modern

The *MS 755* twin-jet fighter-trainer.

fighter. For this reason, the *MS 755* has two 880-pound-thrust jet engines, cabin pressurization, machine guns, camera guns, gyroscopic gun sights, radio compass, tricycle undercarriage, and night flying equipment.

The twin-jet fighter-trainer has a span of 31 feet 7 inches, a length of 31 feet 10 inches, and a height of 8 feet 6 inches. It has a maximum speed of 485 miles an hour and a service ceiling of 39,370 feet.—News release.

TRANSJORDAN

Reforestation Program

Half a million trees were planted in recent ceremonies organized by the Transjordan Government to promote a nation-wide reforestation program. This program aims at replenishing the forests that once stood on what is now barren desert. Under the direction of the Department of Forestry, forests are appearing in areas that were deserts 10 years ago.—News release.

BRAZIL

European Farm Families

Brazil has announced a program for settling 12,000 Europeans on Brazilian farm land during the next year.

It is expected that the movement of farm families from Europe would begin this year and be completed next year.

The immigrant farmers will be provided with land, houses, farm animals, and equipment on a loan basis which will permit repayment of the indebtedness in 12 years.—News release.

Cement Production

The state of São Paulo is to have the largest cement factory in the world, according to the Pan American Union.

The new factory, situated 20 miles inland from the city of São Paulo on the Santos-Jundiai railroad, is expanding its facilities to double its production. The enlarged plant will have a monthly output of 70,000 bags of cement.

Additions to the plant, which are to be completed in 1954, will increase the production further to the rate of a million bags a month. This will be enough to meet a large part of Brazil's need for 1,800,000 tons of cement annually.—*The New York Times.*

Grain Facilities

Brazil is building many new grain elevators, silos, warehouses, mills, and port facilities for the handling of grain to meet expanding wheat production.

Brazil's wheat production in 1946 was 200,000 tons. In 1952, the output was 600,000 tons, and within 4 years it is expected to reach 1,300,000 tons, sufficient to meet all of the country's requirements.

Eleven grain elevators are being built at a cost of 10 million dollars. In addition, large warehouses and grain handling facilities are being constructed at Rio Grande, Porto Alegro, Rio de Janeiro, Recife, and Belem.—*The New York Times.*

FOREIGN MILITARY DIGESTS

The Japanese Navy in World War II

Digested by the MILITARY REVIEW from an article by Major C. S. Goldingham in "The Journal of the Royal United Service Institution" (Great Britain) February 1953.

IT IS commonly said that the Japanese Navy in the last war was badly served both by its direction from the top and by the industrial echelon which supported it. While this is true, the difficulties of Japan must not be forgotten. She was a power of the second order waging war practically singlehanded against two powers of the first order. This dictated her policy and strategy; and, taken in conjunction with two tendencies of the national character, inability to meet sudden emergencies and lack of steadfastness in pursuing a course of action, goes far to explain mistakes curiously out of keeping with the masterly planning and execution of the great initial operation which, in the space of less than 6 months, made Japan temporarily master of the Far East.

Perhaps the gravest charge brought against the Japanese Navy is that it failed to take the necessary steps to protect the sea communications of the island Empire; yet, hampered as Japan was by shortages of every kind both before and during the war, she made such provision for the contingency as was possible. Her shipbuilding resources precluded the provision of an adequate antisubmarine and escort fleet. Banking on a short war, she underestimated the losses which her merchant marine would suffer within the perimeter of naval and air bases with which she surrounded the seas on which they sailed. The vacillations of her naval policy were due to her having lost the initiative after the Battle of Midway and being compelled thereafter to improvise. The authorities were obsessed with the knowledge that she had but one fleet and no possibility of building another, and that the fleet was the final insurance for the protection of the home islands. In such circumstances, it was in the Japanese character to piecemeal and vacillate, and so lose all. A stream cannot rise higher than its source.

Men of the Navy

The men who manned the Japanese fleet were the pick of the nation. Conscription was introduced after 1930, which made every male between the ages of 17 and 40 years liable to military service unless he was the only support of his family. About

two-thirds of the men were conscripts and one-third volunteers. The period of service was 3 years on active service, 5 years in reserve, and 7 years in second reserve. For petty officers the terms were 6, 4, and 3 years respectively. After the expiration of his first period of active service a petty officer or man could, if he wished, re-enlist into active service for several periods of 2 years, before going to reserve.

Japan had the largest fishing fleet in the world, in addition to a considerable merchant marine, and had thus a good stock upon which to draw for the manning of the fleet. On the other hand, her rise as an industrial power was comparatively recent, and there existed in the country no widespread mechanical sense as in Great Britain and the United States.

The men were amenable to discipline, and the disciplinary regulations were not unlike our own. Great stress was laid on preserving military secrecy. Sentences were promulgated in front of the ship's company in the case of a seaman, or the petty officers in the case of one of the latter.

British Influence

The training methods and organization of the Japanese Navy were modeled on the British. Although the Navy was of recent creation and had no history or tradition comparable with the Army's, it possessed a high *esprit de corps* and, within the limitations of its material, had been brought to a high pitch of efficiency. Training tended to make of the men automatons and enhance the national inability to deal with emergencies.

Rugged Training

The training was uncommonly hard and, for the sake of both secrecy and hardening the men, was carried out in the stormy northern waters where the Japanese had secret bases at Hitokappu Island and Paramushiru in the Kuriles. There were two exercise periods each year, one in the late winter and one in the early autumn; and it is said that the loss of a hundred or more men washed overboard or killed by accident during exercises was commonplace. No mention of this ever found its way into the muzzled Japanese press; and it was typical of the Japanese that if he ever asked himself whether such losses were really necessary nobody ever championed his cause.

Life Aboard Ships

Crews tended to be larger than in British ships, type for type, and life on board was Spartan by Western, though perhaps not unduly so by Japanese, standards. Food was good, as it had need to be under the existing conditions. Cadets and recruits received extra rations. The midday meal was of Western type, with meat, while at breakfast and supper the men were given Japanese food. Baths were normally taken on shore, leave for the purpose being provided for in the regulations. Even in peacetime, men ashore were at 2 hours' notice to return to their ships unless on compassionate leave, application for which had to be backed not only by a doctor, but also by the local civil authority. No man could marry unless the captain of his ship approved of the prospective bride.

The Officers

Japanese naval officers were drawn from all classes and their standard of professional efficiency was high. Several failures in the upper ranks came to light during the war, largely caused by the difficulty found by the Japanese of dealing with the unexpected. Promotion by seniority led, in April 1944, to the appointment of Admiral Toyoda as Commander in Chief, Combined Fleet. Admiral Toyoda was taken from the retirement appointment of commander in chief of a home port and had no sea-going experience in

the war, although junior admirals were available who had proved themselves. Under Admiral Toyoda, the jealously preserved Japanese fleet was destroyed in two battles.

Bravery Was a Characteristic

There were some failures, too many in fact, among senior officers to maintain their object. The most publicized is that of Admiral Kurita who allowed the allied invasion forces of the Philippines to escape destruction at Leyte when he had them at his mercy. Admiral Morison, in whose history of the war no loose statement is ever to be found, considers that the behavior of Admiral Nagumo at the Battle of Midway was at one point fainthearted; and he quotes the war diary of the *Nachi* to the effect that at the Battle of the Java Sea the splashes of the *Houston's* shell bursts, stained blood red with dye, terrified some of the junior officers. Nagumo had, however, to be almost forcibly removed from the bridge of his sinking ship, and indeed instances of captains going down with their ships were commonplace. Bravery was, in fact, a Japanese characteristic.

Inculcated Doctrine

The refusal both of officers and men to surrender is well known. Among the men this was due to inculcated doctrine and the knowledge each man had that if he were taken prisoner he would become an outcast. It is less safe to generalize about the officers. Loss of face means much to the Oriental, it is true: so much, indeed, that the lack of fiber which undoubtedly existed here and there was never allowed indulgence except in situations where detection was almost impossible; for example, when a submarine captain forbore to press home an attack, neither his officers nor crew being in a position to criticize.

The Japanese were the victims of the national character. Two generations only separated him from the uncivilized, and he retained the stoicism, disregard of pain, and capacity to rise to the heights of fervor of his ancestors. However, too often he lacked steadfastness and perseverance. The diaries of officers and men in situations of prolonged adversity too often end with whining and self-pity. Many an allied submarine owed her escape to lack of persistence in the hunt by Japanese antisubmarine forces. The action reports of American naval flyers, after the highly trained Japanese pilots of the early part of the war had become casualties, frequently remark on the disinclination of the Japanese to attack unless the odds were in their favor. Students of psychology can doubtless explain how this could go hand in hand with operating suicide aircraft.

The Ships

When Japan withdrew from the Second London Naval Conference in January 1936, she at once set about modernizing her major warships and increasing the size of her fleet. Modernization of the battleships and cruisers was practically complete before war broke out. The building program was intensified from 1936 onward, and the size of the fleet at the outbreak of war was nearly double that at the end of World War I. New construction continued at a high level until 1944, although because of shortages of materials and other reasons the emphasis, apart from aircraft carriers, came to be placed more and more upon light craft and finally upon special attack (suicide) craft.

Operational Policy

The building program was framed to meet the requirements of operational policy in war; namely, to use the aircraft carriers as striking forces with destroyers for screening and heavy ships as floating platforms for antiaircraft batteries. No cruisers other than light cruisers were laid down after 1935. The heavy cruisers carried float planes for tactical reconnais-

sance, thus leaving all of the carriers' aircraft free for strike and fighter protection (combat air patrol) duties. For long-range search and reconnaissance, the Japanese relied largely on four-engine float reconnaissance aircraft and flying boats, working from tenders stationed at the numerous potential seaplane bases in the area conquered in the first 6 months of the war.

The design of Japanese surface warships other than aircraft carriers did not differ radically from British and American. However, while the British Commonwealth, France, and the United States were bound by the Treaty for the Limitation of Naval Armaments of 1936, not to exceed a limit of 35,000 tons for each battleship and 16-inch guns, the newest Japanese battleships, the *Musashi* and the *Yamato*, which joined the fleet soon after the outbreak of war, displaced 72,800 tons at full load and were armed with nine 18.1-inch guns, thus far exceeding in power any other battleships afloat. The building of aircraft carriers began in 1934, and in order to build up a sufficient carrier fleet for the war, two—the *Kaga* and the *Akagi*—were converted from a battleship and battle cruiser design respectively. There were subsequent conversions; and after the loss of six carriers between May and August 1942, two battleships, the *Hyuga* and the *Ise*, were converted to "battleship carriers" for 22 aircraft by the removal of their two after 14-inch turrets and the fitting of flight decks aft. Conversion took a year, and the Japanese then found, as they should have known before, that a 21-knot carrier, the full speed of these old ships, was quite useless except for escort purposes. This was typical of the Japanese. More than once during the war, building programs were started, only to be scrapped after a start had been made. At one time a program of 130 destroyers, badly needed by the fleet, was begun, and was stopped when 35 had been completed.

Japanese cruisers were distinguished by high speed and heavy armaments, a result obtained partly by length of hull and partly by reducing thickness of armor, especially above deck. Lightly protected or not, they stood up well to punishment, a result attained by considerable subdivision of the hulls. This was especially the case with the *Musashi* and the *Yamato*, which required respectively 9 and 18 aircraft torpedoes to sink them. Japanese destroyers were the first to enclose their twin 5-inch guns in gun-houses.

On the outbreak of the war, the ships, other than those in the China fleets, were organized for administrative purposes as shown in the chart on page 77.

Submarines

The most striking thing about the foregoing organization is that the Commander in Chief, Combined Fleet, kept under his direct control, in addition to the two most powerful battleships, two flotillas of submarines. This is a revealing commentary on Japanese submarine doctrine, which held that the principal role of the ocean-going submarines was support of fleet operations. Submarines, termed the Advanced Force, were frequently an integral part of a surface task force, as for example in the attack on Pearl Harbor in December 1941, and certain of the Solomon Islands operations. Another role was the reconnaissance of harbors or bases from which forces might sortie and could be attacked, as at Midway in June 1942; or ambushing, that is, moving submarines beforehand to the expected path of an enemy force, as in the Marianas operations in June 1944. On account of their employment operationally with the fleet, the type was characterized by high surface speed and light build. Since, however, it is impossible to build a submarine with a speed comparable with that of a surface warship the underwater craft was always at a disadvantage, and the very

few successes were mostly fortuitous or achieved against a damaged ship such as the *Yorktown*, which the *I-168* sank after the Battle of Midway.

There existed in the Japanese Navy no separate submarine organization as in the British and United States Navies. Submarines were attached to various fleets, the commanders in chief being provided with a submarine liaison officer as adviser on submarine operations. The two main classes of submarines were the I and R, roughly over and under 1,000 tons, respectively. The R-class were used for patrols and for defensive purposes, the I-class for fleet operations and patrols. Prior to the war, the importance ascribed to midget submarines led to three ships being fitted to carry them to their objective and charge their batteries. The ships were, however, never used for the purpose, and instead certain I-class submarines were fitted to carry midgets. It was in this way that the attacks on Diego Suarez and Sydney were carried out in the early part of the war. Suicide torpedoes *(Kaiten)*, with a compartment for a man to steer them, were also carried on board submarines. Many submarines were provided with a hangar and carried a small aircraft for reconnaissance; and late in the war three submarines of more than 5,000 tons, with a range of some 37,000 miles at 14 knots, were built with three hangars for bombing aircraft, the intention being, apparently, to bomb Washington. This was typical of the manner in which the Japanese dissipated their slender resources uselessly, for these submarines could have had no possible effect on the course of the war.

Despite their preoccupation with the

Commander in Chief, Combined Fleet	
2 battleships (16-inch guns)	
2 submarine flotillas	
First Fleet	8 battleships (14-inch guns)
(Battle Fleet)	6 cruisers
	2 cruisers (flotilla leaders)
	28 destroyers
Second Fleet	12 cruisers
(Scouting Fleet)	2 cruisers (flotilla leaders)
	28 destroyers
Third Fleet	3 cruisers
(Blockade and Transport Force)	1 light cruiser (flotilla leader)
	12 destroyers
	5 submarines
	minesweepers, minelayers, submarine chasers
Fourth Fleet	3 light cruisers
(Mandated Islands Fleet)	1 light cruiser (flotilla leader)
	8 destroyers
	16 submarines
Fifth Fleet	3 cruisers
(Northern Fleet)	2 destroyers
Sixth Fleet	3 cruisers
(Submarine Fleet)	42 submarines
First Air Fleet	6 fleet aircraft carriers
	4 light carriers
	12 destroyers

employment of their submarines for operational purposes with the fleet, the Japanese carried out some campaigns against allied communications, particularly on the route from the United States to Australia and in the Indian Ocean, largely as a result of German urging. The offensive in the Indian Ocean, where antisubmarine vessels and escorts were very short, was not mastered until March 1944: it was persisted in partly because, on account of the foregoing shortage, it was a safer area in which to operate than the Pacific. The offensives in the latter area were never more than very short-lived; but there is little doubt that if the Japanese had thrown every available submarine into an offensive against the American Central Pacific advance in November 1943 they would have disrupted the logistic system completely, which depended upon the operation of fleet trains and the stationing of groups of oilers at ocean refueling points. The Americans then would have been thrown back on to the system of laboriously constructing advanced bases and rolling them up in their rear (since even American resources could not run to idle installations). Moreover, since speed was the essence of the Central Pacific advance, the campaign should have been fought differently so that the Japanese could have gained the time which they were continually striving for—time which was never more desperately needed than at the juncture when they were reforming the naval air groups which had been weakened in the struggle to defend the Solomons and Bismarcks. It was this failure to gain a few precious months that cost them their fleet.

Supply Operations

Another use which the Japanese found for their submarines was the supply of bypassed and beleaguered bases. It is difficult to obtain firm figures of the number of boats thus employed, and too much attention has perhaps been paid to it; but during the defense of the Marianas, regarded by the Japanese as vital, no less than one-third of the total submarine force was employed in the work of supplying bases not directly involved in the operation. The decision to employ submarines in this manner, which was apparently forced upon the Navy by the Army, was responsible for the trend of submarine development later in the war, which was a compromise of the transport and patrol types.

The low standard of Japanese technological research bore heavily on the submarine service, in which efficient radar, sonar, and communication equipment were necessary for the conduct of successful operations against the British and United States Navies, in which these inventions were so highly developed. The fact that the Japanese Army and Navy carried out their own research independently was a source of weakness. The continuous advance in allied methods of detection and destruction was not only a deterrent to the audacity of individual Japanese submarine officers, but also influenced operational planning—for instance, as in the Indian Ocean.

During an investigation into Japanese operations, undertaken after the war, the conviction grew that, in a service whose bravery has never been questioned, the percentage of discreet submarine commanders was large. It was frankly impossible to believe that submarines could spend weeks on the United States west coast "without contacts," or spend more than 40 days running among the Solomons during the Guadalcanal campaign "without seeing any targets." Even the Japanese commanding officers could not disguise their embarrassment when recounting these tales. Further enlightenment is found in the extremely large number of times the target was "too far away to attack."

The submarine commanders were chiefly responsible for the atrocities committed by the Japanese Navy during the war. Most of the naval atrocities occurred in the Indian Ocean, where the proportion of sinkings was high and it was also here that the bully in the Japanese nature came to the surface. This writer knows of only one instance where operation orders by superior authority embodied specific instructions for the killing of all prisoners, civil and military. This was in the little-known raid by the cruisers *Aoba* and *Tone* on the Indian Ocean trade routes in March 1944; the orders for which were issued by Admiral Takasu. The raiders were sighted by a United States submarine, passing through Sunda Strait, and the trade routes were at once cleared of shipping. Only one ship was sunk; all but 16 of the passengers and crew being murdered on board the *Tone*.

The Japanese Torpedo

One of the unpleasant surprises of the war was the efficiency of the Japanese torpedo and the torpedo tactics of Japanese destroyers, the latter was the result of intensive training. In the surface fleet, the 24-inch, contact-firing, oxygen-fueled torpedo was standard, as the influence-firing or acoustic-homing torpedoes were not employed. The weapon weighed 2½ tons or more, of which the explosive charge accounted for more than 1,000 pounds, and it was remarkable for its speed and range. The Japanese claimed that one type had a speed of 49 knots with a range of 22,000 yards. This was perhaps a slight overestimate, but there is considerable evidence to show that the torpedoes which hit the battleship *North Carolina* and the destroyer *O'Brien* on 15 September 1942 were fired by the submarine *I-19* from a distance of 5 to 6 miles and the torpedoes had a running time of 6 to 7 minutes.

Japanese destroyers carried a full load of torpedoes and gear for reloading their tubes on deck. The speed with which they could reload in action gave them a great advantage. At the Battle of Kolombangara, in July 1943, a division of destroyers withdrew, reloaded in 18 minutes, and reappeared; in the melée, the American radars gave no indication whether they were friend or foe, and almost the entire American cruiser force was hit, sunk, or damaged.

An Important Weapon

The expenditure of torpedoes was heavy, partly because of the importance of the weapon; although, secure in the knowledge of its great range and speed, ships were apt to fire from impossible positions. In the Battle of the Komandorski Islands in May 1943, for example, the cruiser *Abukuma*—for cruisers were fitted with torpedo tubes—fired at a range of 36,000 yards. However, so many hits were made at long ranges that, until the middle of 1943, when the existence of Japanese long-range torpedoes became generally known in the American fleet, ships torpedoed by destroyers frequently believed themselves to have been the victims of submarines.

Gunnery

With such importance ascribed to the torpedo it was only natural that gunnery was not highly developed. Most of the gun battles of the war were night encounter battles which tended to degenerate into melées. Two engagements of the old-fashioned slogging type occurred between cruiser and destroyer forces during the war, undisturbed, or almost so, by aircraft interference. In both, the Japanese were in superior force. In the first, the Battle of the Java Sea in February 1942, four allied ships were sunk by torpedo (one perhaps by mine) and only one by gunfire. In the second, the Battle of the Komandorski Islands, no ship was sunk,

although the battle went on for several hours. Incidentally, the chief reason of the Japanese admiral for breaking off the action was that he became disheartened by his apparent inability to damage his opponents, thus bearing out what has already been said of this facet of the Japanese character.

Antiaircraft gunnery was poor, and was not aided by the predilection for stationing screening ships on a wide circle long after the Americans had discovered that the best defense was by a tight screen. Use of the main armament for antiaircraft defense was standard, and American attacking aircraft would sometimes be surprised by colossal explosions in the air long before they were near the target. At the Battle of the East China Sea in April 1945, the United States strike aircraft reported being pursued by bursts from the *Yamato's* 18.1-inch guns for a distance of 12 to 15 miles.

The legend that the Japanese Navy was not good at night fighting was exploded at the Battle of Savo Island in August 1942. This was not a complete test of Japanese eyes against American radar, since the radars were largely inoperative in the circumstances existing on that night. However, in both the battles of July 1943, in the Solomons (Kula Gulf and Kolombangara), the Japanese sighted the Americans before the United States radar found them, and the Japanese launched their torpedoes before the Americans opened fire with their guns. In the few prepared (by the Japanese) naval engagements which took place during the war, such as Savo Island, Japanese tactical efficiency served them well; but in the night encounter battles, except for some brilliant destroyer work, their inability to operate without a cast-iron plan placed them at a disadvantage. Japanese warships were not fitted with radar until after the Battle of Midway in June 1942. Equipping the fleet took a long time, and even as late as October 1944, during the night battle for Surigao Strait, Japanese radar was so ineffective that the battleships *Fuso* and *Yamashiro* were unable to return the radar-controlled fire of the United States battleships and were overwhelmed without firing a shot at them.

Landing Craft and Ships

The Japanese Navy was the pioneer of landing craft. An officer who witnessed the landing at Tientsin in 1937 reported that 400 landing craft (probably more than all the future allied navies together then possessed) and a 10,000-ton landing craft carrier were used: "Ingeniously, the carrier ejected landing craft two at a time out through her stern, while great ports in her side enabled vehicles or craft to be embarked and disembarked." In Malaya, landing craft taken to pieces on the east coast were carried across land and assembled on the west coast, to cause confusion by landings in rear of our Army. That the Japanese never developed anything as efficient, each for its own purpose, as the LVT and the DUKW was due to the fact that after the first few months of the war their need for such amphibians had passed.

Naval Air Force

From the outset of the war, the Japanese employed their aircraft carriers as capital ships with an immensely extended striking range. At the beginning of the war, the established strength of the Japanese Naval Air Force is believed to have been 1,737 aircraft, of which 660 were fighters, 330 shipboard torpedo aircraft and bombers, and 240 land torpedo aircraft and bombers. As a result of experience in their first encounters with Japanese carriers the Americans drastically increased the proportion of their fighters. Japanese float reconnaissance aircraft and flying boats numbered 325, a criterion of the importance ascribed to shore based

air reconnaissance. There were two seaplane squadrons with a complement of some 70 seaplanes in all; and a rather larger number was attached directly to the Combined Fleet. The normal complements of the fleet carriers were about 63 aircraft (72 in the case of the *Zuikaku*), of which 27 were fighters and the remainder torpedo aircraft and bombers. The complements of the light carriers were about 21 or more.

The Japanese continually attempted to increase the speed of dropping of their aircraft torpedoes and reduce the range of arming. Heights of drop were normally from 500 to 100 feet, in a power glide, while bombs were dropped in dives down to 500 feet. Attacks were made out of the sun for choice. The superiority of the Japanese naval fighter in speed, maneuverability, and climb was another unpleasant surprise of the war, although this was compensated by the superior armament, the armor, and the leak-proof tanks of the Americans: lacking the last, the Japanese aircraft easily took fire. Production difficulties prevented the universal adoption of these tanks throughout the Japanese Naval Air Force.

The Japanese early adopted the theory that land based air power should be an integral part of the naval establishment, and close co-operation between land and carrier based air forces played a large part in their early successes. The bulk of the fighting strength of the shore based naval air forces was contained in the 11th Air Fleet, two of whose three flotillas, with a total of 270 aircraft and about 80 in reserve, were based in Formosa, with detachments at Palau, the Marshall Islands, and Indochina. The last was the base of the remaining flotilla of 105 aircraft and 30 in reserve.

The carrier pilots were the cream of the Japanese Naval Air Force. Aggressive and resourceful, they flew their aircraft with skill and daring. Their peacetime training

One of the Japanese Navy's greatest errors was in not providing adequate protection for the merchant fleet. Above, a Japanese freighter being strafed by United States aircraft.

was thorough and compared well with that given to allied pilots. Many of them had gained experience in operations in China. This fine corps was soon destroyed. During the first 2 years of the war some 3,800 Japanese naval aircraft were destroyed in combat and 4,500 operationally. The destruction of the carrier air groups was completed by basing them on shore for the defense of the Solomons and Bismarcks, and in the absence of a real reserve of pilots the training organization was unable to make losses good. While thousands of aircraft could be built (it is estimated that 14,161 were produced for the Japanese Navy in the peak year of 1944) only hundreds could be maintained and only scores could be manned by efficient pilots. Flying experience decreased from 700 hours in the first half of June 1942 (Battle of Midway), to 400 hours in June 1944 (Battle of the Marianas), and to no more than 100 hours at the end of the war.

Suicide Operations

The later stages of the war saw the introduction of suicide attacks by the Japanese air forces. The Japanese were predisposed to suicide tactics with weapons such as *Kaiten* (human torpedoes), crash boats, limpeteers, midget submarines, and the like. They were of the opinion that they failed to take full advantage of the national docility and readiness for self-immolation and that they failed to pay sufficient attention to such weapons. However, for all the success they achieved other than by suicide aircraft, they might have spared themselves the waste of effort and material involved. Their lack of success was primarily due to bad intelligence. On three occasions midget submarines managed to enter allied harbors only to find no ship of any great value in the harbor.

Suicide air operations were on a different footing and were able under favorable circumstances to cause enormous damage. Known as *Kamikaze* (Divine Wind), this type of attack, in which the pilot directed his aircraft, with a bomb lashed to it, to hit the target ship, made a spontaneous appearance among pilots of the Japanese Naval Air Force in the summer of 1944. It was later officially recognized and training was undertaken; and the final stage of the war witnessed the greater part of the air forces in process of conversion to suicide aircraft for the defense of the home islands against invasion. Its first concerted employment was in October 1944, when the Americans assaulted the Philippines, although it was not until the attack on Okinawa 6 months later that it was employed on an extensive scale. The circumstances were favorable, for the ships of the United States Fifth and Third Fleets and the British Pacific Fleet had to remain immobile, acting as floating batteries for the protection of the invasion shipping. In the course of less than 3 months, more than 300 ships were sunk or damaged by suicide air attack; and although sinkings were confined to light craft and auxiliaries, the vessels put out of action included several American aircraft carriers. On the other hand, the armored decks of the British carriers gave them adequate protection, and every carrier, although hit at least once, remained in operation. From the Japanese point of view, *Kamikaze* had the advantage of enabling the half-trained pilots of the war's end, and almost any type of aircraft that could get into the air, to be used. A fighter or a trainer aircraft with a bomb lashed to it made an adequate suicide bomber. The disadvantages were the vulnerability of the aircraft during its dive and the ineffectiveness of the bomb against all but the most lightly built ships, because of its small penetrating power. Moreover, complete training could not be undertaken, since the attack if carried through to the end entailed destruction of aircraft and pilot. It was a wasting asset and a policy of despair.

Panic in Combat

Digested by the MILITARY REVIEW from an article by Captain Luciano I. Gunabe in the "Philippine Armed Forces Journal" January 1953.

WHAT is panic? How does it manifest itself? What are its causes? How can it be stopped?

Panic, as we would want it understood, is the result of uncontrolled fear. It is fright in mad flight. Men gripped by terror, without giving it their mind, run away, deserting the front lines for the safety they do not after all know where. It is the sad plight of men seeking escape from danger, wrenching themselves free from the controls of discipline and duty. That is panic!

I have seen a company of infantry go into panic during the last war. For several days, Japanese troops had been probing the main line of resistance for a possible break-through. They finally selected the sector on my right, the terrain offering an ideal passage for their fast-moving infantry.

First, they blasted away the barbed-wire obstacles with dynamite sticks, mortar shells, and machine-gun fire. Then, through the gap created, they pushed a hard-hitting task force which screamed as they dashed across the cratered area.

At the sight of the screaming, toothy, bespectacled enemy, the defending company gave way in terror. The men scampered to the rear helter-skelter.

A few hours later, I saw the company commander of the hapless unit lumbering slowly back to his position through our area. Asked why he left his sector, he quipped back: "Why, my men left me, so I left after them."

The members of his company, finding themselves unacceptable in the other units of the regiment, eventually trickled back to the area they deserted only to see it positioned by a new outfit.

Examples of Panic

In 1896, an Italian army of 15,000 men was pitifully reduced to an incredible 3,500 by a disastrous panic. Fighting in unfamiliar terrain, fed by horror tales about the cruelty of the native Abyssinians, raked by poor morale, and seething with miserably low regard for their officers, the invasion army headed unceremoniously for the bottoms. Almost at the first clash with the weirdly shouting native troops, the Italians threw away their rifles and ran away in inconceivable disorder.

In 1904, during the Russo-Japanese War, a Russian rifle brigade was transformed into a stampeding herd at the frantic shouting of a comrade. He saw a shadow in the gathering darkness. His imagination magnified it and pictured it as the vanguard of the enemy. So he jumped up and shouted that the Japanese were coming. That was enough to turn the trick. The others were swept into the maelstrom by mere suggestion. They did not bother to find out. Actually there were no Japanese for miles around.

In 1866, a dust cloud raised by a herd of frightened pigs caused the rout of Austrian troops. They thought the German cavalry was charging.

In the American Civil War, the Union forces took a disastrous beating at the first battle of Bull Run because they readily gave in to panic. They did not know then that the Confederates were just as ready as they were for the run. It was just a question of who would take to their heels first.

In the European Theater of Operations in World War II, there were several cases of panic among allied troops. Although they did not materially alter the ultimate

outcome of what General of the Army Dwight D. Eisenhower prefers to call the Crusade, they certainly posed considerable difficulties to the immediate commanders.

A striking example is that which happened at the La Fiere bridgehead in Normandy, on 9 June 1944, reported by Brigadier General S. L. A. Marshall in his book, *Men Against Fire*. An infantry company commander gave an order for a limited withdrawal. Since he was with the left flank platoon, his order did not carry to the right flank. He then began an orderly but rapid withdrawal of the left flank. The flank executed the movement as desired. It remained under control and stopped at the line designated—the first hedgerow to the rear. The right flank, seeing the movement but not understanding the order, promptly took to its heels. Others joined the flight as it passed a group of skirmishers and only heroic measures by a few determined individuals stemmed a tide that threatened the entire position.

What happened in the Kwajalein operations on 1 February 1944, recorded in Brigadier General S. L. A. Marshall's *Island Victory*, illustrates the disastrous outcome of unexplained rearward movements by some elements of on outfit that had been "catching hell" the preceding night into the following day.

The ground on the right having finally become too hot, the men shifted to the left. However, even these positions already had all the men they could hold, and so men who had been in the forward ground moved on farther toward the rear. They were followed by nine wounded, making their way, as best they could, to a first aid station.

At the crucial moment two incidents occurred which precipitated all that followed. The light machine gun to the left went silent from a stoppage. The crew could not get it in operation, so they moved back, dragging the gun. The radio of a forward observation party had gone bad from the rainfall. The party had already asked and received permission to return to the company command post and exercise control from there. However, when this group started back to the command post, it went at a run. That was the beginning of a rout. The observers were unaware that there was any change of the infantry position going on. They ran back because it seemed like the best thing to do at the time. Those who were still sound and willing in the forward area on the left saw these men go by in the darkness and mistook the meaning of what they saw. To them, it appeared to be a general withdrawal. Those who were able to do so, including the wounded and the others who were already moving, also broke into a run. The few who had stood their ground took out after them. The front line vanished.

It took the presence of mind of the company commander to check the stampede. He told the withdrawing troops to use their heads, and even grabbed some of those rushing to the rear, turned them around, and got them going forward. The movement was stemmed, the line restored.

Causes of Panic

It was stated earlier that panic is the result of uncontrolled fear. Therefore, anything that precipitates that result may be considered as a cause of panic.

Prolonged anxiety, overfatigue, exhaustion from lack of sleep, prolonged exposure to the din of battle, excessive alcoholism, and lack of proper food, all tend to cause a jittery state of mind which gives rise to panic.

Lack of training is one main cause of panic. Military training must be so planned as to cover the possible exigencies of combat. In other words, it must be well rounded. All phases of armed combat must be visualized and the methods applicable to each phase studied and practiced. Combat is not all attack. There

are instances when it would be more tactically advantageous to execute a quick disengagement and organize for defense rather than pursue the attack. Similarly, conditions may occur when withdrawal becomes a far wiser move than a determined defense. That usually happens when the defensive position is rendered untenable by enemy maneuvers. Therefore, men must be trained in orderly withdrawal.

The nature of modern war demands that each man in a military organization must be capable of independent action. We no longer employ the phalanx formations, where the men fight shoulder-to-shoulder on the battlefield. Today, dispersion is the rule. In the confusion of combat, the men may not even see each other. It becomes necessary, therefore, that the individual soldier, when faced with a situation where he becomes seemingly alone, should do everything in his power to take good care of his sector just as the others are taking good care of theirs. That ability is acquired only by training and practice. Moreover, it is of primary import that such ability be acquired; it makes the soldier prepared to combat panic.

Bad morale is another cause of panic. An outfit that is torn by mutual distrust among the men and among the officers, does not hold much promise for victory. On the contrary, an outfit of that kind drags itself rapidly into the brink of panic.

Rumor is also panic-producing. Wild tales about the cruelty of the enemy tend to prepare the way for panic among the soldiers. False news of defeats on other fronts hastens the succumbing of the men to panic.

Poor leadership is a sure invitation to panic. Many good commands have degenerated because weak officers had been assigned to them. Officers who are apologetic and uncertain about the orders they issue, and who become confused when confronted by vexing difficulties concomitant with command do not have the respect of the men.

Indecision or stupidity in officers increases the predisposition to panic. Prolonged waits under tension or unexplained retreats in the face of apparent triumph throw the men off balance and render them susceptible to panic.

Insecurity, surprise, defeat, high mortality, hunger, disease, ignorance, doubt, worry, anxiety, and loss of faith all give nourishment to panic.

How to Stop Panic

The best way to stop panic is to remove all the causes that breed panic. If that is not possible, fight them by providing good leadership and by building high morale. Train the men thoroughly in the use of their weapons, in the tactics not only of the attack and the defense, but also of the withdrawal, in the art of fighting together as a team.

Once panic has started, it must be halted by all means. Rally the men by oral commands. Stop them dead in their tracks with the force of your personality, with decisive determination, and with the example of your courage. Lead them back to their positions vigorously and calm them with paternal understanding and with the assurance that they are there to win.

Loyalty is a balm to panic. When the men see or hear their leader beckon to them—their leader for whom they hold affection and respect—the men, even in their fright, would stand by and follow that leader. That is loyalty; that is why from the start loyalty must be cultivated among the men—loyalty to the leader, to the organization, and to one another. In such a comforting state of affairs no panic could easily set in.

Dropping in on the Enemy

Digested by the MILITARY REVIEW from an article by David Le Roi in "The Services and Territorial Magazine" (Great Britain) January 1953.

PARACHUTE troops are essentially an offensive weapon. Their principal function is to form the spearhead of an invading army. Carried in specially adapted aircraft, they are aimed at their objective and dropped in sticks of 12, their parachutes opening automatically as they leave the aircraft.

In certain circumstances—such as when it is important that they should land with the maximum of surprise—they jump from the aircraft at a high altitude and make a delayed drop, not opening their parachutes until they are within a few hundred feet of the ground.

Primarily, the parachute soldier must create the maximum confusion in the enemy's rear. To succeed in that, the paratrooper must be an individualist, able to adapt himself to his surroundings, have a first-class eye for country, and be familiar with all types of weapons used by his own and the enemy armies.

Men of a parachute unit must be exceptionally fit and self-reliant, and they must be prepared to act quickly without previous reconnaissance. In landing they are very scattered and out of touch with their leaders.

When making their drop, parachute troops are as lightly equipped as possible. Their nonoffensive equipment consists of sufficient food and water for 2 days, a crash helmet, and thick-soled boots. Weapons are restricted to revolvers, submachine guns, light automatic rifles, and hand grenades.

Heavier equipment—such as machine guns, artillery, demolition material, radio transmitters and receivers, armored and transport vehicles, and tools—is dropped in special containers.

The principal objectives of parachute drops are strategic points behind the enemy lines, such as airfields, bridges, crossroads, and railway junctions, which the paratroopers are expected to seize and hold until they are reinforced by airborne troops landed by gliders. When parachute troops are acting as the spearhead of a land attack, it is essential that there should be the closest co-operation between the ground and air troops.

It is of little use for paratroopers to seize and hold an objective if the enemy is able to wipe them out before the arrival of the ground forces.

Although Germany sprang a major tactical surprise by the successful large-scale employment of parachute troops in the early stages of World War II, the Soviet Union was the first country to train paratroopers in any large numbers. As early as 1935, the Soviet Army had at least one fully equipped, properly trained parachute battalion.

The Soviet Union

During the elaborate army maneuvers which were held in the Soviet Union in 1937, and which were observed by British and German military missions, an entire mechanized brigade, complete with light artillery, transport, and tanks, was carried in a fleet of 200 converted bombers a distance of 100 miles and then dropped by parachute. The descent was made at night without a single accident and took the "enemy" completely by surprise.

That the Soviet Union was firmly convinced that paratroopers were destined to play a major role in future military operations was indicated by its encouragement of the civilian population to take up parachuting as a sport. Throughout the

Soviet Union hundreds of parachute schools were established where men, and even women, could make practice jumps from high towers. When the pupils gained confidence, they were taken up in aircraft and taught to make delayed-drop descents.

By these means the Soviet Union built up an enormous reserve of experienced and daring parachutists ready to be mobilized for military purposes. It was estimated that by 1939 the Soviet Army had at its disposal nearly a half-million men trained in the use of parachutes. However, as the Soviet employment of parachute troops in the Finnish war was to prove, the tactical employment of paratroopers had been neglected.

Germany

On the other hand, Germany had been quick to appreciate the potentialities of parachute troops, and during the 2 years preceding the outbreak of World War II had trained thousands of troops in the use of parachutes and laid down the fundamental principles of parachute tactics.

France

France, too, had been impressed by the Soviet experiments, and in the autumn of 1938 carried out a convincing demonstration of parachute delivery of men and materials. A fully equipped machine gun company of 60 men was dropped from a half-dozen troop-carrying aircraft; within 5 minutes after landing, the men had released themselves from their harnesses, set up their machine guns, and were ready to meet an attack by a mechanized force sent to engage them.

Great Britain

However, the consensus of British military opinion was *then* inclined to dismiss all these parachute experiments as of little, if any, value. Indeed, it was asserted that parachute troops would have no affect in actual warfare, when they would be mopped up before they had time to go into action. Within less than 2 years there was to be a violent awakening from that dream.

First Employment

On 30 November 1939, parachute troops went into action for the first time, when the Soviets invaded Finland and dropped a number of paratroopers near Petsamo. Within the next few weeks, similar landings were made at Petchenga, Vitmann, Straud, and Salmijarvi. Owing to a lack of co-ordination with the ground troops, none of these drops had any influence on the campaign, and in each instance the paratroopers were mopped up before they did much damage.

That Germany had adopted the Soviet idea to better purpose was proved by the prominent and successful part played by German parachute troops in the invasion of Norway.

The large German forces which were dropped at Narvik (with the object of taking the main Norwegian army from the rear) were constantly reinforced and were responsible for the Norwegian collapse in that area. One company of the 1st Parachute Regiment, which was dropped at Dombas, seized the railway station and cut the British communications. Other German paratroop units were dropped in various parts of the country and played havoc with allied installations and communications.

Admittedly, casualties among German parachute troops in Norway were heavy, but the experience undoubtedly proved of value to the German High Command in its later employment of the arm.

Within a few hours of the German invasion of the Netherlands on 10 May 1940, German parachute formations captured a number of Dutch airfields, and thus put the Royal Netherlands Air Force out of action. The seizure of bridges and rear communications by other bodies of enemy paratroopers not only cut off Dutch rein-

forcements, but, preventing the retirement of the main army to its prepared positions, made impossible any attempt to form a front.

German parachute troops were equally successful in the attack on Belgium. Within 36 hours, a small force dropped on Eben Emael had reduced to impotence a fortress that had been expected to withstand the most determined attack for at least 2 weeks.

Working in close co-operation with the panzer divisions, paratroopers played a prominent part in the rapid collapse of French resistance. They were the spearhead of the German attack north of the Somme, and by their capture of road junctions and military telephone exchanges threw the French rear into complete confusion.

Following the surrender of France, Germany commenced assembling a large parachute force for the invasion of Great Britain. However, in April 1941, these troops were diverted to the attack on Greece and Crete.

Parachute troops dropped near the Corinth Canal, captured and held the only bridge connecting the Peleponnesus, and prevented allied forces retiring there. Possession of the bridge also gave the Germans a supply line through the Gulf of Corinth and enabled them to land unlimited troops and material there.

Thousands of parachute troops were dropped over Crete. There the plan was to use them to disorganize communications and interfere with the machinery of the British command. Owing to the lack of ground and air antiaircraft defenses, they met with little real opposition, and their capture of airfields, on which the follow-up troop-carrying aircraft could land, and the reduction of all other strategic points made possible the rapid capture of Crete.

German parachute troops were used on a comparatively small scale in the campaigns against the Soviet Union, chiefly because of the great distances in that country and the mobility of the Soviet armies.

The most notable instance of their use in the Soviet Union was in November 1942, when the Soviet Army was advancing on Kharkov. Von Bock dropped a large force on the Soviet communications, thereby disorganizing the Soviet advance and enabling the German commander to regroup his troops.

British Operations

British parachute troops were first used in February 1941, when a small number were dropped in southern Italy in an unsuccessful attempt to destroy a viaduct. Better fortune attended the employment of British parachutists in the raid on Bruneval and the attack on St. Nazaire.

In 1942, the War Office established a parachute regiment to provide personnel for the parachute brigades and independent (pathfinder) companies within the airborne divisions. The new unit saw its first major action in November 1942 when it occupied enemy airfields during the North Africa landings. British parachute troops participated in the invasion of Sicily in July 1943, and again in the struggle for the Anzio beachhead in January 1944.

In preparation for the allied landing in Normandy in June 1944, a large force of British parachute troops was built up, and they formed the spearhead of the invasion, being the first allied soldiers to land in France. For that operation, more parachute troops were used than the Germans had had available for the invasions of Norway, the Netherlands, and Crete.

On 17 September 1944, a strong force of parachute and airborne troops was landed at Arnhem to establish and hold a bridgehead for the British Second Army. Although initially successful, the expedition encountered unexpectedly strong German resistance and, after suffering heavy casualties, was compelled to withdraw before a junction could be effected with the ground forces.

On the other hand, the action of the paratroopers dropped at Eindhoven and Nijmegen made possible the eventual advance of the Second Army from the Belgian frontier to the outskirts of Arnhem. British parachute troops later played a prominent role in the assault across the Rhine.

Last German Effort

The last employment of German paratroopers as airborne troops was in Von Rundstedt's offensive in the Ardennes in December 1944. By that time, however, the Germans had lost their air power, and parachute ventures achieved little success.

American Parachute Troops

Besides participating in parachute operations in Africa, Italy, and Europe, the United States Army employed parachute troops in the Pacific campaign, where they played a major part in the capture of a number of Japanese-held islands. One of their earliest and most successful operations was in New Guinea in 1942, when a large force of United States parachute troops jumped from a low altitude under cover of a smoke screen to take the Japanese from the rear.

Curiously enough, parachute troops were a minor factor in Japan's advances in Malaya and the Dutch East Indies, being used on only some half-dozen occasions. They landed on Luzon on 13 December 1941, and in the Celebes on 10 January 1942.

Three days later they assisted in the capture of Tarakan, off Dutch Borneo, and in February 1942, a small force was dropped in Sumatra. However, parachute troops were never a decisive arm of the Japanese military machine.

Communism and the Australian Military Forces

Digested by the MILITARY REVIEW from an article in the "Australian Army Journal" January 1953.

THE object of this article is to present briefly the current aims of the Australian Communist Party in relation to the Australian Military Forces and to outline certain methods which may be adopted by the Party to further those aims.

The Theory of Communism

The important point in the Communist theory is that man lives in a community and thus the mass of the people is the source of all right, all law, and all human relationship.

According to Marx, whose teachings were embraced by Stalin, there is no God, and all religion, whether it be Christianity, Islam, Buddhism or any other form of Divine worship, is a delusion and a fraud. Similarily, all the teachings of Christianity are wrong and our code of living, as it concerns morality, standards of right and wrong, truth and falsehood, justice and injustice, is meaningless and made only for the exploitation of others.

Communists claim their theory can be put into practice by the adoption of a system whereby:

1. The community is the sole owner of all means of production, distribution, and exchange.

2. Private enterprise is abolished and replaced by an arrangement under which all members of the community give according to their ability, and are remunerated according to their worth.

3. All family life, as implied by private ownership of property, is abolished and replaced by community life under which no one individual owns anything.

Communists claim that after the intro-

duction of this Utopia, dictatorship will vanish, class hatred will cease, and all people will work together in harmony.

Is this theory workable? Let us consider some of its implications.

The members of a true Communist state would need to set aside all ambition, all self-expression, and all individualism; this is contrary to human nature. Even a Communist state must have leadership, and so a community would inevitably have its dictators, but no one would have the right to question their actions, as is possible in a democracy. As there would be no religion, a Communist state leader would be interpreting a man-made code under which all existing laws and standards are redundant, and he would, therefore, need to possess qualities which are seldom found in human beings. Finally, the renunciation of religion by the Communist state would obviously appeal to man's baser instincts, with the result that all standards of decency, as we know them, would cease to exist, because they are not part of the Communist theory.

The Aim of Communism

For its fanatical devotees, communism has the value of a religion for it gives life a sense of purpose. This purpose is the establishment of a better world with the creation of a world-wide community under the control of the Kremlin.

This aim is to be achieved by the projection of communism into the free world by means of indirect attack (world-wide propaganda methods), external attack (support of the cold war, for example, in Korea, French Indochina, and Malaya), and internal attack.

Internal Attack

Communist methods for internal attack follow more or less the same pattern in all countries. First, the theory is introduced by means of books, newspapers and radio, lectures, and movies. Second, an organization is formed in the country concerned and operations to prepare the country for the ultimate overthrow of control are recommended. These operations may take the form of the promotion of strikes and the consequent slowing down of production; the discreditation of persons and governments hostile to communism; the creation of enmity between individuals; the careful selection and indoctrination of well-educated professional people of the type who are open to subversion with a view to their employment as future Party executives, or, in other words, the establishment of an espionage network for use prior to and during a war; and by "inside work," the deterioration of the armed forces of the country and all institutions upholding law and order, by incorporating secret agents in their midst.

It is the last-mentioned method which is of most interest to the armed forces—the undermining of service efficiency. Let us examine this method in more detail, in particular its application to the Australian Military Forces.

The current intentions of the Communist Party in relation to the Australian Military Forces are believed to be:

1. The employment of indoctrinated regular soldiers as agents for spreading communism.

2. The infiltration into the Army of personnel from outside sources, for sabotage duties at the right time, and to obtain classified information.

3. The subversion of young soldiers, including National Service trainees.

4. The disparagement of the Army and its senior officers by all possible means, through the media of propaganda, pamphlets, speakers, and rumors.

5. The establishing of a Communist cell in each unit, which will include officers and senior noncommissioned officers.

6. The lowering of morale in units by means of encouraging discontent and the consequent lowering of unit efficiency.

7. Attempts to turn officer and enlisted men relationships from that of leaders and men to one of pure social class distinction.

Subversion of a Soldier

There are four main stages in the subversion of a soldier to communism.

Selection of the Victim

The rank of the prospective victim may vary from that of private to that of a senior officer, selection being dependent upon the victim's present or ultimate use to the Australian Communist Party as a source of classified information, as an agitator, as a disseminator of propaganda, or as a recruiting officer for additional victims. He may be selected, too, because he has some characteristic or belief, which provides an easy starting point, for example, socialistic or pacifist leanings.

Cultivation of Friendship

The confidence of the victim must be gained before any attempt is made at indoctrination. Communist agents will try to gain membership in soldier's social, sporting, and mess committees with the aim of eventually gaining control and then using the influence so gained to achieve popularity and to gain the confidence of those whose opinions they hope to sway. Invitations to homes and to discussion groups will follow, or the victim may become interested in Communist-infiltrated youth or peace organizations. Women Communists may be used extensively in the approach to the male victim.

Indoctrination

Indoctrination is the most vital, yet perhaps the most subtle, part of the whole process. During normal conversations or during debates or group discussions, subjects are introduced by Communists. These subjects, at first meeting innocent enough in themselves, are used as a means for the introduction of Communist ideas and arguments. Once some of these ideas are firmly planted in the victim's mind, he is encouraged to talk about them as though he were their originator. This panders to his ego. To help this "seed" germinate, Communist pamphlets and circulars may be introduced into the unit in many ways and at the right time to foster discussion along the required lines.

Development

Once the seeds have germinated or even once they have been sown, the speed and intensity of the development process will be governed by the characteristics and status of the victim and by the nature of the task for which he is to be used. The usual practice is to encourage the victim to carry out some small or unimportant task on behalf of the Party. Once this is achieved, it is difficut for the man to turn back.

The process of subversion may be a long one, but once subverted, the victim is never let go. Soldiers who are "anti-everything" are easy meat for the Communists, but they are poor human material and the Party aspires to something better. The fantastic thing about the entire matter is that the subversion of many otherwise sound, intellectual people is achieved by harping on the so-called ultimate aims of the Communist theory—the setting up of a Utopian state.

The Counterattack

It is a well-known principle that every commander is responsible for the security of his unit, but it is frequently forgotten that this includes security to attack from within. To achieve a high standard of internal security, it is necessary for the commander to ensure that all members of his unit are alert to the dangers outlined above; in other words, that the security education of all ranks is well advanced.

The unit security officer must be par-

ticularly alive to the necessity for the counterindoctrination of the members of the unit and he should receive the unstinted support of all officers of the unit. If there is a unit chaplain, he can help greatly with his advice to members of the unit, should he be approached on personal matters relevant to this subject.

As a means of self-protection against subversion, there are three things a soldier can do. He can maintain his own personal integrity and loyalty and can encourage others to do the same. If he is approached by another soldier or civilian, whom he believes to have subversive intent, or if he hears or sees anything which he considers may be subversive, he must report the matter at the first available opportunity to the unit security officer or any officer of the unit. If he receives any subversive literature, he should hand it over (together with wrappings and envelopes) to the unit security officer, giving particulars of time, place, and method of receipt. If a soldier does these three things, then the Communist is defeated before anything is achieved.

Conclusion

The threat is a real one, for the aim of communism has already been achieved in many countries. Mr. Churchill writes: "Communism is not only a creed, it is a plan of campaign." Other highly respected leaders consider it a form of psychological warfare. To be forewarned should be to be forearmed!

The Effect of an Atom Bomb on a Modern Airfield

Digested by the MILITARY REVIEW from an article by Squadron Leader P. F. Blackford in "The Royal Air Force Quarterly" (Great Britain) January 1953.

THERE is a danger that the familiarity of sensational news items about the effects of an atom bomb may obscure the facts of its true performance. Many confusing reports have been published. Statements that a single atom bomb would obliterate London conflict with claims that estimates of its likely effects have been exaggerated. Comforting reports, that the extent of damage in Hiroshima was caused by the Japanese practice of building their houses of cardboard, disregard the severe damage to their steel-framed concrete buildings a mile from the explosion.

The truth is ugly enough. The atom bomb has turned the strategic bomber from a shotgun weapon into a lethal blade which can decisively injure the strongest nation within the space of a few days. This very fact has transformed the airfield into one of the most vital elements of a country's war potential.

Until the guided missile replaces the aircraft, the conventional airfield is the base from which either offensive sorties with atom bombs might be flown or from which defending fighters could operate against the threat. Clearly, airfields would be one of the first targets in any future war. From experience of the last war we know that to close an airfield effectively by orthodox bombing, heavy and repeated attacks are required. Therefore, the contingency that the airfield might be a worth-while target for an atom bomb cannot be overlooked.

Although many details of the design and use of this weapon remain secret, enough has been published by the United States Atomic Energy Commission on the experience gained from past atomic explosions for a realistic forecast of their effects on a target such as an airfield.

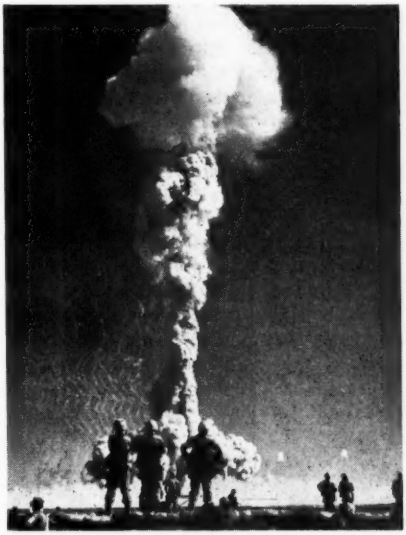
An airfield consists essentially of the

runways, the servicing and domestic accommodation, for which a primitive standard would be acceptable in war, servicing material, and aids to flying such as communication equipment. The only one of these components which could not be quickly replaced or improvised in war is the runway itself. The tire pressures of modern aircraft are so high that they cannot operate from untreated soil, and so without runways they are useless. Although serious casualties to either aircraft or to personnel would, proportionately, reduce the flying potential, prompt replacements, in the absence of other damage, might permit early restoration of the force; but serious damage to the runways of a modern airfield could be guaranteed to stop modern aircraft flying completely.

Air Burst

Assessments of the likely effect of an atom bomb must be based on the nominal atom bomb used at Hiroshima and Nagasaki, which was equivalent to 20,000 tons of TNT. These bombs were relatively inefficient because fission of the available material was incomplete; so these calculations are based on minimums rather than probabilities. When the nominal atom bomb is exploded above the surface, heat radiation makes the surrounding air incandescent, and within a second a ball of fire of about 450 feet radius is formed. This ball of fire, which contains the vaporized products of fission, climbs rapidly to the stratosphere, forming the characteristic mushroom cloud, which is highly radioactive. Unless the bomb is exploded below 450 feet, causing the ball of fire to touch the surface, there will be no serious residual radioactive contamination of the target. Therefore, if an airfield is attacked by an atom bomb exploded above 450 feet, direct effects will be limited to the blast, flash, and nuclear radiation emitted within about 10 seconds of the explosion. To compromise between devastating the maximum area around ground zero and dispersing the over-all effects, the bombs on Japan were exploded at about 2,000 feet.

In a similar attack on an airfield, precautions against horizontal blast would be ineffective, because in the relatively small area covered by the airfield and its installations most of the blast would be directed downward and would fall on the roofs of buildings and shelters. Blast walls would, however, provide useful protection against flying debris. Judging by the effects of the bombs on Japan, airfield buildings and dispersed aircraft would be seriously damaged by blast up to 2 miles from the explosion. The flash would start fires in combustible material such as wood, and unless shielded would cause casualties to personnel by skin burns at similar ranges. It would also induce temporary blindness in personnel who looked at the flash. Buried piping and services would probably escape damage, but the widespread fracture of



Troops watching an atomic explosion during tests at the Nevada Proving Grounds.

water mains above ground would complicate fire fighting even if the necessary appliances remained undamaged. Casualties would probably be severe. The ground within 800 yards of ground zero would be completely devastated and within this radius protective measures other than deep shelters would be largely ineffective. Only 10 percent or less of the personnel within this area would be likely to survive. Beyond 800 yards, protective measures would begin to have an effect in reducing the mortality percentage. Casualties to personnel would be caused by flying and falling debris, by secondary fires and flash burns, and by the initial nuclear radiation of the explosion. The lightest of screens would shield personnel against the flash, but more substantial protection would be needed against the initial nuclear radiation. Against this, 16 inches of concrete would be necessary to give safety at a range of 800 yards, and without protection, the dose would generally be fatal up to a radius of about 1,200 yards. The significant factor is, however, that the most important single component of the airfield, the runways, would not be damaged at all, and since there would be no residual radioactivity on the surface, the airfield could be used again for landing and taking off directly after the radioactive cloud dispersed. To restore the airfield to operation, damaged aircraft would have to be replaced and casualties among the personnel made good; the time that these measures would take would govern the time taken by the base to recover its function. It is worth while reflecting that an attack with an air-burst atom bomb might well be used by an enemy who hoped to use the airfield himself within a few hours.

Underground Explosion

The picture would be very different for a bomb exploded after penetrating the surface of the ground. The energy released would be comparable with that developed by a moderately severe earthquake, and experience of earthquake effects provides useful data for theoretical calculations on the likely result of such an atomic burst. A nominal atom bomb would have to penetrate the earth to a depth of 600 feet before the effects of the burst could be kept under the surface and it seems unlikely that penetrations of such magnitude can be achieved.

An explosion at such a depth would have only seismic effects causing serious structural damage to buildings over an area depending on the nature of the soil. An average figure for the radius of such an area would be 1,000 yards. Of course, there would be no flash or nuclear radiation effect on the surface from such an explosion.

Radioactive Contamination

An underground burst is much more likely at a depth of up to about 50 feet in ordinary soil. In this case, flash or initial radiation would be insignificant and blast effects would be about half that of an air burst, but a crater about 800 feet in diameter and 100 feet in depth would be caused. The contents of such a crater would weigh about half a million tons. Most of the material expelled would be highly radioactive and would seriously contaminate an area, depending on the strength and direction of the wind. In a 20-mile-an-hour wind this area would probably measure about 4 miles downwind and ¾ mile upwind. The crater itself would be heavily contaminated with radioactivity which would decay only slowly. This would prevent access to the crater for a long time, certainly some weeks. Clearly, if the crater could be made in or near the main runway, use of the airfield would be effectively denied for a long time. Even if the crater itself did not block the airfield, the area affected by expelled radioactive material would first have to be decontaminated before the airfield could be restored to use.

Radioactive contamination can easily be

detected and measured by instruments, but it cannot be sensed in any way by humans. Radiation doses are to some extent cumulative; therefore, since the maximum dose which the average human can tolerate is known, the time which a man can safely work in a contaminated area can be calculated from the degree of radioactivity present. If this exceeds a certain point, personnel cannot enter the area at all until the contamination has decayed to a safe level.

No Immediate Physical Effects

Radioactivity has no immediate physical effects on the human body. Exposure to an overdose will lead to an incapacitating effect known as radiation sickness, but even after a lethal dose there are no physical effects for several hours. Death will follow a fatal dose in about a week. Where the dose is not lethal the casualty will eventually recover.

Decontamination of Radioactivity

Decontamination of radioactivity is possible by three basic methods. These are by burial, by allowing the contamination to decay to a safe level, and by physical removal of the contaminating radioactive particles. All methods are subject to the overriding factor that no active measures at all can be taken until the contamination has decayed sufficiently to allow rescue and repair personnel to enter the area for a useful period.

On an airfield, material thrown up by an underground burst would contaminate the surface of the airfield, dispersed aircraft, and the outside of airfield buildings. Some decontamination would be necessary even to allow personnel to evacuate the airfield. Grassland could be buried by deep plowing, but on the surfaces of airfield roads, runways, and buildings, contamination would have to be eliminated either by chemical reagents or by physical removal of the actual surface. The chemical method depends on the conversion of the radioactive particles into a soluble compound which can be washed away by a water jet. The radioactivity of the particle is not destroyed by this method; it only allows the particle to be removed.

Where the particles have penetrated the surface they can only be eliminated by removing the surface by some process such as sandblasting. Decontamination by either method leaves the serious problem that the removed radioactive particles must still be disposed of safely.

Clearly, an atom bomb, accurately placed on an airfield and fuzed to explode at maximum depth of penetration, would certainly stop flying from that airfield for a considerable time.

Surface Explosion

There remains a third possibility, that of the atom bomb exploded on the surface. The crater would be much smaller than that caused by an underground explosion, with similar residual radioactivity both of the crater itself and the material expelled. Part of the potential energy developed by the fission would produce similar, although much less intense, blast and flash as that caused by an air burst, because some of the energy would be dissipated in seismic and cratering effects. Since the factors most likely to deny use of the airfield would be the size of the crater and of the area contaminated by radioactive particles, the surface-burst atom bomb would not be as effective a weapon as the underground burst. However, it is worth reflecting that, unless an atom bomb can be designed to remain safe after a crash or crash fire, the surface-exploded bomb may well result from a take-off crash.

Minimizing the Effects

No doubt the appropriate authorities are taking steps to provide the necessary equipment and training to minimize the effects of atom bomb attacks, but plainly

such an attack would put an airfield out of action for a considerable period.

Figures based on the nominal atom bomb are probably realistic because they are quite serious enough without any increase in the bomb's effectiveness. More powerful atom bombs would not necessarily be more effective against targets such as airfields. For such use the tendency will probably be to reduce the size of the bomb without impairing its destructive power, so that it can be delivered by smaller and faster bombers.

It would be wasteful to over-hit an airfield with a weapon which might be used more effectively against a more dispersed target. The threat of the atom bomb is one of the most powerful international forces at work in the world today.

The airfield projects this weapon which makes it a most attractive target, and the most effective weapon against the single airfield is an atom bomb. The decisive duel of a future war might well be the initial battle between the opposing strategic bomber airfields.

The Soviet Encirclement at Stalingrad

Translated and digested by the MILITARY REVIEW from an article in "Revue Militaire d'Information" (France) 10-25 December 1952.

ON 19 NOVEMBER 1942, the Soviets, after halting the German offensive aimed at Stalingrad, passed over to the counteroffensive. This maneuver was dictated by the disposition of German troops along the front—the German Fourth and Sixth Armies held a particularly exposed salient between the Don and the Volga Rivers, and the German strategic reserves were located at a considerable distance from the front. Moreover, the movement of the reserves was hampered by winter weather and difficult terrain conditions.

The Soviet counteroffensive was conducted by two armies—one attacking in a north-south direction from the Serafimovich area and the other in a west and northwest direction from the Tsatsa area. Both were aimed in the direction of Kalach—Marinovka.

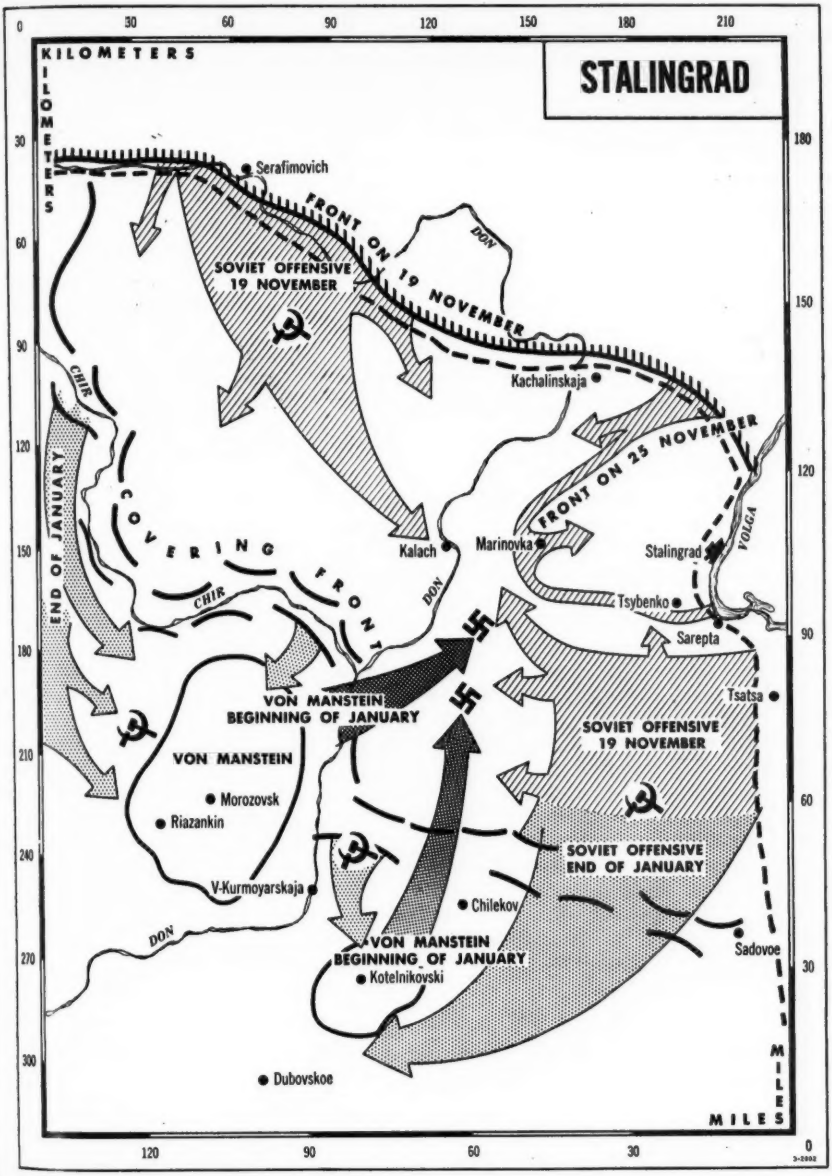
The German forces to be enveloped included some 22 divisions; much larger than the strategic reserves which the Germans had available. At first, it was necessary for the encircling forces to protect themselves from the direction of the interior circle, rather than from the outside, until the German lines of communication had been cut.

The break-through of the front was effected primarily by infantry units. The principal attacks were accompanied by several supporting attacks designed to pin down the enemy forces and cover the break-through attacks. By the third day of the counteroffensive, the Don had been crossed at three points and the break-through of the German positions effected. The Soviets then were able to pass over to exploitation with their armored and motorized units.

Strategic Encirclement

The strategic encirclement was effected by rapid units (armored, motorized, and cavalry units) supported by aviation. Their rate of progress in the open terrain attained an average speed of 19 to 25 miles a day. This was realized, however, only because the Soviet units avoided pausing at local centers of resistance. Instead, they confined themselves to bypassing and blocking all centers of resistance.

By the fifth day, junction had been


STALINGRAD
KILOMETERS
MILES
Serafimovich
FRONT ON 19 NOVEMBER
SOVIET OFFENSIVE 19 NOVEMBER
DON
Kachalinskaja
FRONT ON 25 NOVEMBER
VOLGA
Kalach
Marinovka
Stalingrad
COVERING FRONT
CHIR
END OF JANUARY
Tsybenko
Sarepta
Tsatsa
VON MANSTEIN BEGINNING OF JANUARY
VON MANSTEIN
SOVIET OFFENSIVE 19 NOVEMBER
Morozovsk
Riazankin
SOVIET OFFENSIVE END OF JANUARY
V-Kurmoyarskaja
Chilekov
Sadovoe
VON MANSTEIN BEGINNING OF JANUARY
Kotelnikovski
Dubovskoe

effected, and strategic encirclement obtained by cutting the railroads and highways leading to Stalingrad from Dubovskoe and Morozovsk.

The Germans, by employing an all-round defense, offered but weak opposition to the isolation of Stalingrad. However, with considerable supplies at their disposal and with a strength of some 22 divisions, Von Paulus' encircled forces had hopes of being able to resist the Soviet attacks for the entire winter if necessary. When the violence of the Soviet attacks gave rise to German speculations of possible defeat, it was too late, and the disengagement action, which would have succeeded during December, failed the following month.

Tactical Encirclement

Following up the rapid formations, the Soviet infantry units widened the breach, and, little by little, established a continuous tactical front extending in a curve from Tsybenko and Sarepta to the Don bend and toward Kachalinskaja.

Because no exterior threat had presented itself, and because the encircled forces were very large, the major portion of the Soviet forces (about 80 percent) was transferred to the interior face of the curve in order to compress the space that Von Paulus had at his disposal (initially about 3,100 to 3,500 square miles).

By the end of December, the encircled units, although considerably tried, were still capable of vigorous resistance, but they were incapable of unleashing an offensive that would be of any decisive help to any aid coming from the west and southwest.

Taking advantage of the initial inaction of the Germans, the Soviets rapidly established exterior cover on the Chir and Don Rivers, as far as V-Kurmoyarskaja then in the general line V-Kurmoyarskaja—Chilekov—Sadovoe.

Having thus obtained sufficient space, the Soviets were able to conduct their operations over interior lines, between the encircled forces and the disengaging forces (Von Manstein).

At the beginning of January 1943, German forces coming from the south attempted to extend aid to Von Paulus' encircled forces by attacking from Kotelnikovski and from Riazankin. However, it was too late. The principal mass of the Soviet forces rapidly shifted over to the exterior face of the encirclement and was able to contain the encircled forces and halt Von Manstein's forces. Then, by attacking with fresh troops, the Soviets were able to threaten Von Manstein's flanks and force him to fall back.

Abandoned to their fate, the remnants of Von Paulus' forces stubbornly held on in a desperate defensive. However, out of food and ammunition, and having lost all their airfields to the Soviets, they were forced to capitulate on 2 February, after being isolated for more than 2 months.

Thus, Stalingrad, in shifting the initiative over to the Soviets, marked the decisive turning point of the war on the Eastern front.

Until the building of our strength has progressed much farther we must not become too confident or complacent. We have to hope for the best and prepare for the worst at the same time.

General Nathan F. Twining

Carriers Are Not Capital Ships

Digested by the MILITARY REVIEW from an article by Air Marshal Sir Robert Saundby in "The Aeroplane" (Great Britain) 16 January 1953.

THE news that the Government of the United States has authorized the construction of two additional large aircraft carriers, as sister ships to the *Forrestal*, of 60,000 tons, now building, serves to focus attention on the probable role of aircraft carriers in the future. This is a controversial subject, about which we are likely to hear a good deal during the next few years, and so it may be worth while to try to form some idea of the part which carriers might play if, in negation of all our hopes, war should once more break out between the great powers.

Possible Operations

Carrier operations can be conveniently divided into three categories. First, and most important, is the task of protecting ocean convoys. Second, there is the suggestion that carriers should assume the role of the capital ship of the future, replacing the powerfully gunned and heavily armored battleship of the immediate past. Third, there is the offensive role as a mobile airfield from which, it is suggested, bombers could be launched in order to reach objectives beyond their radius of action when operating from land bases.

Dependent on Ocean Commerce

In this country, in war as in peace, we are, as everyone knows, dependent upon a vast flow of imports of food and raw materials, almost all of which must come to us over the sea. We need these imports to feed and clothe ourselves, and if they were to be cut off we should not only be unable to play our part in prosecuting the war, but we should, within a measurable time, be literally dying of starvation, because even our home agricultural production, which might feed half the nation, is largely dependent on imported foodstuffs and fertilizers. Our 52 million people, crowded together in this small island, are more vulnerable in this respect than any nation on earth.

During the last two world wars, our enemies have been fully aware of this weakness. In both these conflicts the Germans pinned their faith to the submarine as the main method of cutting off our oversea supplies, employing it in unrestricted warfare against our merchant shipping. Both times they failed, although in 1917 they were too near success for our comfort, and in both wars we had to divert a large part of our effort, at sea and in the air, to the defense of our sea communications.

The development of antisubmarine warfare from the air has been so stimulated by this threat that air power is now fully as important as sea power in this field. In fact, during the last war, more than half the enemy submarines known to be destroyed were credited to the operations of aircraft.

We may hope that the land based aircraft of our operational commands at home, reinforced by those of the Dominions and our allies, will ensure the safe passage of our convoys in the narrow seas round our shores and the approaches to our ports, and in sea areas all over the world where their routes are not too far from our land based air power. Even so, there will remain large tracts of ocean across which our convoys must pass, and which are far enough from the land to make it unwise or even impossible to rely on land based air power to protect our shipping. For this task there is no alternative to the escort carrier.

During the last war it was shown that such carriers were able to give a high degree of protection to convoys. Although improvements to submarines, including "snorkels" and higher underwater speeds, provide a new challenge to our defenses, there is in sight no better way of meeting this threat than the employment of escort carriers and ship-borne aircraft equipped with the latest radar detection devices. Indeed, the improved performance of submarines makes the escort carrier and its aircraft even more important, since it is probable that, for a time at least, the higher speeds of submarines, both awash and submerged, will make the task of our relatively slow frigates and other convoy escort vessels more difficult.

'Capital Ship'

In the next category is the assumption by the aircraft carrier of the role of the capital ship of the future. In order to appreciate more clearly what this involves, let us examine the idea underlying the term "capital ship."

In the old days of sail, the line-of-battle ship, or ship-of-the-line as it was usually called, was the main unit of sea power. It could be destroyed in battle only by ships of its own class, and, therefore, feared nothing at sea except a larger fleet of ships-of-the-line. In those days, broadly speaking, sea power could be measured in terms of the number of ships-of-the-line possessed by the various nations. With the gradual introduction of steam propulsion, armor, and long-range guns, the ships-of-the-line came to be known as battleships, and later as capital ships. They were still the prime units of sea power, and naval strength was assessed in terms of battleships.

Toward the end of the nineteenth century, however, with the perfection of the sea mine and the torpedo launched from small, fast, unarmored vessels, the capital ship ceased to enjoy the privilege of fearing nothing but ships of its own class. It could be sunk, or seriously damaged, by weapons which attacked its thin underwater hull, and had no need to penetrate its heavy above-water armor plate. A squadron of capital ships, therefore, could no longer roam the seas in majestic solitude, but had to rely on screens of cruisers, torpedo-boat destroyers, and minesweepers to protect it.

Carrier Protection

Later, with the coming of submarines and aircraft, the capital ship became vulnerable to attacks launched from the air, or from beneath the waves, by unseen enemies. It could be surprised and sunk without having a chance of bringing its powerful armament to bear on its foe. It now had to redouble its defensive screen of cruisers and destroyers, and to include carriers, equipped with defensive fighters and antisubmarine aircraft, in its protective system. In addition, to guard against air attack, it had to armor its decks and mount powerful batteries of antiaircraft guns. Thus a squadron of half-a-dozen capital ships would require an ancillary fleet of 50 or more other warships to protect it.

The battleship had always been regarded as indispensable by naval writers on the grounds that if any other nation had battleships we must have them too, and more of them, because they could be dealt with only by ships of their own class. As a result of this assumption, we maintained, up to 1914, what was known as the "Two-Power Standard"; that is, we aimed to possess as many battleships as any combination of two other powers. By the end of World War I, the assumption that only battleships could deal with battleships was demonstrably no longer true, but it took the experience of the last war to convince us that we could rely on other and less expensive methods of destroying them.

Value of Air Power

Most of the German capital ships in the last war were sunk or rendered harmless by means of air power. The *Bismarck* was sunk by our capital ships, but only after it had been crippled by a hit on the rudder from a torpedo launched by a ship-borne aircraft. The *Tirpitz* and the *Gneisenau* were destroyed by air power alone. The *Scharnhorst* was kept out of action for nearly 3 years by air power, and sunk on its first reappearance at sea by one of our capital ships. It seems safe to reckon in the future on our air power being able to deal with any capital ships an enemy might seek to operate against our sea communications.

Capital Ship of the Future

I think that the idea that the carrier would become the capital ship of the future probably had its origin in the sea battles between the Americans and the Japanese in the Pacific in World War II. On most occasions, these battles were decided by means of air attacks launched from the aircraft carriers, and the battleships never saw each other and had no chance to fire their guns. Indeed, the Japanese, when their ship-borne air strength was broken by their carriers being sunk or put out of action, withdrew their sea forces and abandoned the comparative freedom of naval action which they had enjoyed since Pearl Harbor. It is understandable that these events should have encouraged a belief that, although the battleship is dead, its place as the capital ship—the main unit of sea power—has today been taken by the aircraft carrier.

Idea Is Obsolete

However, the fact is that it is not only the battleship, but the whole idea of the capital ship, that is obsolete. There are now in the world only two navies with any substantial strength in surface ships—the British and the American. It is unthinkable that they would ever be in conflict with each other. Therefore, the task of the Royal Navy, in concert with the sea power of our allies, will be antisubmarine warfare and convoy escort. For these duties they will need escort carriers and fast surface antisubmarine vessels, but it is hard to see in what way a capital ship could come into the picture. It can certainly no longer be argued that, if a potential enemy began to build aircraft carriers in the role of capital ships, we must have them ourselves in order to deal with such a threat.

Mobile Bases

There remains the third category, the task for which, presumably, the *Forrestal* and her great sister ships are being built. These mobile air bases are no doubt intended to make it possible to launch atom bombers against targets beyond the range of land based air forces. However, are there, nowadays, any such targets? If there are, would it not be far cheaper and more satisfactory to give adequate range to land based bombers, either by increased size and efficiency, or by means of refueling in flight?

Suppose, however, we admit for the sake of argument that there may be a small number of vital targets beyond the reach of land based bombers. What chance would these large carriers have of getting unobserved to the point at which their bombers could fly off, and remaining thereabouts until their bombers had returned and landed on? War being what it is, there is always a chance of pulling off a surprise attack of this kind. However, it seems to me that an enemy would quickly guess that such an attack had a sea-borne origin, and it would not be a difficult matter to send a force to follow the retreating bombers back to their parent ship. Once she had been located and reported, wave after wave of land based bombers and torpedo aircraft could be sent against

her, and her survival would be most improbable.

It is sometimes suggested that these great ships could carry a sufficient number of fighters to give them local air superiority, and thus protect them against air attack. However, this seems to be wishful thinking, for the number of fighters that even the largest carrier can put into the air must be limited. There is always the possibility that they would be overwhelmed and fought to a standstill by the relatively unlimited land based attack.

Those who argue in support of sea-borne operations of this nature are wont to point out that, during World War II, none of our carriers was sunk or even seriously damaged by land based aircraft, as long as it had its full complement of fighters on board. This statement, although true, is misleading in this context. There are several good reasons why this was so. First, we were careful not to expose our carriers to this risk, and limited their operations accordingly. On very few occasions did we employ our carriers, within range of enemy land based air forces, for the purpose of launching a bomber attack. When we did take a chance as in the attack on the naval base at Taranto, or the forcing of convoys through the western Mediterranean for the relief of Malta, we were opposed mainly by the Italians, whose morale was low and whose technique was comparatively primitive. Even so, the Malta convoys were no picnic.

Next, the operations of our ship-borne aircraft never threatened the Axis powers, and particularly Germany, sufficiently to make it worth their while to concentrate any serious effort to destroy our carriers. Last, but not least, from early 1943 onward, the Italian air power was broken, and the *Luftwaffe* had more than it could do to defend Germany against air attack and provide support for the land forces on the Eastern front. It would, therefore, be rash to count on a similar immunity in a future war, unless our carriers so conducted themselves as to give the enemy no compelling reason to seek their destruction.

Summary

To sum up, the escort carrier is a vital necessity, and it is to be hoped that we shall provide ourselves with a sufficient number of them, properly equipped for their task. The aircraft carrier is not required as the capital ship of the future, as the role of the Navy has now become mainly antisubmarine warfare, and the conception of the capital ship, as the indispensable backbone of sea power, is out of date. If an enemy should build and attempt to employ carriers as capital ships, we can destroy them by means of land based air power and in other ways. The third role, that of bringing bombers within range of vital targets, has been rendered unnecessary by the increase in the range of land based aircraft and, in any event, such an employment of carriers is attended by great risks and is of doubtful value.

It would, therefore, seem to be wise to concentrate such resources as are allocated to the Navy on the provision of escort carriers, and on the replacement of our slow frigates and other antisubmarine vessels by faster ships, more capable of dealing with the modern submarine. We can safely leave it to the Americans who are better able than we are to afford such expensive luxuries, to experiment, if they so wish, with the use of carriers as capital ships and mobile air bases.

Security--Is It Worth the Bother?

Digested by the MILITARY REVIEW from an article in the "Australian Army Journal" February 1953.

THOSE of us who handle documents bearing a security classification no doubt have asked ourselves whether security is worth the bother.

Every day before going to dinner or before leaving the office for the day, we deliberately clear our desks of classified material, locking it away carefully in a steel cabinet or safe. We then check our wastepaper baskets to make sure they contain no notes, drafts, or carbons which could have a security classification.

Or do we?

Perhaps we are in a hurry to leave. Perhaps the noon hour seems too short as it is! Perhaps we think that this security business is a bit over done anyway! Why, much of the stuff we handle and which bears a security classification we can read in the newspapers!

Surely the security people do not consider a locked filing cabinet a safe place for classified documents! Anyone really wanting to could break it open!

The arguments all sound quite logical—but are they?

Two Categories

Enemy agents may be divided into two categories: those who are members of an organized espionage ring—with the task of obtaining specific information of a top secret or secret nature—and those charged with the collection of casual information—that is, information which in itself may not be highly classified, but which, when collated with information from other sources, will supply the enemy with facts from which he may deduce intelligence of far-reaching importance.

The task of countering the activities of an organized espionage ring belongs to the various civil and military security or counterintelligence organizations, and may be called "detective security." The efficient countering of casual collection of information by enemy agents is the responsibility of every individual who has access to classified information, and may be called "protective security."

Nevertheless, a high standard of protective security by individuals and departments handling classified information is the first requirement, if detective security is to be effective. The more attention paid to the protection of classified information the harder is the task of the enemy agent in securing or collecting such information, and he may be forced into taking risks, which will lead to his "discovery" by detective security measures.

Espionage Ring

In order to secure a particular item of highly classified information, the espionage ring must first learn of the existence of such a document, and if it is in the top secret category the knowledge of its existence should be the right of only a select few. The next task is to "infiltrate" the select few, with the aim of learning who is responsible for the document; who has access to it; who typed it; and, if it is in a safe, who has the key or knows the combination. Having ascertained this information, the next step is to study the habits and background of those who have access to the document or who are responsible for its custody. When do they leave their offices unattended? Have they ever been members of subversive undercover organizations, such as certain youth movements or peace and pacifist bodies? If they have, they will be considered as possible targets for subversion. Are they in financial difficulties? If so, they may be open to bribery.

And so it goes on! Considerably detailed

and patient research which will take time and money must be undertaken—and all with the aim of borrowing, stealing, viewing, or photographing the documents concerned.

Casual Agents

How do the casual agents operate—the persons who are not seeking specific knowledge, but who are trained to take advantage of any opportunity to collect classified information?

These agents require less organizing, and will be a constant source of information if protective security is weak or nonexistent. They may be members of the office staff, typists, messengers, janitors, watchmen, or mess employees—in fact, anyone who has ready access to an establishment where classified information is held.

Three Questions

As a casual enemy agent, you would probably ask yourself three questions:

1. What type of information is required?
2. Where is this information to be found?
3. How am I going to get it?

Let us examine probable answers to these questions!

First Answer

During peace, the type of information that a future enemy will require is that which will assist him most during the early stages of a war. As far as the Army is concerned, such information might include details of operational and administrative plans to be put into effect at the outbreak of war; details concerning developments and improvements in arms and equipment; details of the organization of certain special units to be raised in war; strategic supply information; military aspects of pacts with foreign powers; and proposed and current activities of certain intelligence agencies.

Second Answer

Where is the information to be found? The best way to get a general answer to this question is to consult the telephone directory of the headquarters concerned—a document which, from a practical point of view, cannot be classified above "restricted." However, even when the general potential source of information has been discovered, the agent would still be ignorant concerning the locations of the actual containers (safes and cabinets) of the information in which he is interested. Still, he has found out in which offices he is most likely to gain casual access.

Third Answer

Now how is he going to get it? The essence of the work of a casual agent is to avoid arousing suspicion, and consequently he is not generally prepared to adopt burglar-like methods to obtain his information. If office doors or cabinets are forced open, then this will probably be discovered in the near future and steps can be taken to change any plans which may have been compromised by his inspection of the document, and he is not likely to get additional information from the same methods.

Consequently, he will adopt less noticeable methods—the use of skeleton keys to inspect office desks during the noon hour and during morning or afternoon breaks; the examination of wastepaper baskets for classified waste (drafts, carbons, and notes); the exploitation of carelessness by the staff, where office doors or cabinets are not locked or where the key to a locked cabinet is left lying in an unlocked desk drawer; by visiting the occupant of an office and scrutinizing or secretly photographing documents on the desk when the user is called out of the room for a moment; and by listening-in to the telephone in the hope of hearing information over crossed lines. These methods are easy, and from an examination of his-

tory, it has been found that they bring excellent results. If we examine them in detail, it will be found that they are easily countered by the individual who is security conscious.

Are these methods being employed in Australia today? There is good reason to believe that they are, and they are certainly being employed in countries which will be our allies should another world war occur.

Ask yourself the following questions:

1. What classified information do I handle or am I responsible for?

2. How many ways could this information be obtained from me by an enemy agent?

3. How can I ensure that none of these methods is used to get this information from me?

Security is as strong as its weakest link, and if that weak link is an individual, then that individual, either consciously or unwittingly, is betraying his country's secrets to the enemy. Be sure you are not a weak link in the nation's security—you will be if you regard security precautions as not worth the bother.

The Danger of the Cold War

Digested by the MILITARY REVIEW from an article in "The Navy" (Great Britain) March 1953.

SINCE the beginning of the century the British Government and people have regarded a war against America as unthinkable and, with the experience of two world wars behind us, such a contingency is now looked upon as quite impossible. It is, indeed, fortunate that the strength of the armed forces we require can be estimated with that basic consideration in mind. This is not to say, however, that the most powerful nation in the world will be prepared for an indefinite time always to join Britain and the Commonwealth in any war in which they may be engaged in the future. As long as the present emergency—the threat of Communist aggression—persists, we may, perhaps, legitimately assume that the United States will not radically change her foreign policy or withdraw from her membership of the North Atlantic Treaty Organization. However, the division of the world into two parts by an iron curtain cannot last forever. Already there are signs of dissension and unrest in the Soviet realm, and if, as seems possible, a hot war does not develop from the cold war within the next few years, the day may well come when the Kremlin rulers will decide in their own interests to reach an understanding—a *modus operandi*—with the rest of the world and allow conditions in Europe again to become normal.

A Twofold Danger

For Britain this intervening period presents a twofold danger. Not only is there the constant possibility of a major war, but there is also a real danger of the British people relying too much and for too long on a great and friendly nation across the Atlantic and forgetting that this grand old country of ours will not long remain a great nation if we do not rebuild and maintain a powerful Navy. Until the Korean campaign, not one new fighting ship had been laid down since the war, and the construction of the aircraft carriers and other vessels which commenced during the war proceeded at a snail's pace. Nor was there any evidence of general alarm or even astonishment when the late Government announced that we could not hope to win another Battle of the Atlantic without the help of the United States Navy.

Under the rearmament proposals, a substantial building program of small ships is now in hand to meet the submarine and mine menace; but the North Atlantic Treaty Organization requirements—large armies and air forces for the defense of the Elbe—are equally pressing. Moreover, we have insufficient resources available to rebuild, at the same time, a Navy capable of taking the offensive in war and ensuring that in time of peace this country once again plays an effective role in world affairs. For the time being, the vast majority of the vessels required for the offensive—for the invasion and capture of strategic coastal areas and the bombing of inland communications and war potential establishments—must be provided by the United States.

Sea Power Essential

This dependence on a friendly ally may not, it is true, be wholly regrettable in view of the revolutionary changes in weapons, equipment, and even possibly in types of ships to be anticipated in the coming years. However, it must not last too long. Otherwise the neglect of essentials for the provision of immediate needs may engender a habit of mind that will do irretrievable harm to this country. The British people may well lose their understanding of the nature and value of sea power and of how it has enabled this country to exercise a moral, political, economic, and military influence over a large portion of the globe. The aircraft of today have not diminished the value of sea power; they have enhanced it. Based on a carrier, they can start their operations from the vicinity of an enemy's coast, their base being moved across the water to wherever it is needed. It is interesting to note by way of example that in the 6 months before the atom bombs were dropped in World War II, the United States carrier forces, operating some 1,500 aircraft, destroyed more than 5,000 aircraft based on the Japanese mainland. Their ability to move at will to any given area enabled them to choose the time and place with an overwhelming local superiority of force.

The same considerations will apply to the guided rockets and atomic missiles which will soon be available for both land and sea warfare, for they will be the more effective by being launched from ships in the vicinity of an enemy's coast. Changes in the methods by which the seas are controlled and exploited will continue. However, the seas remain, as always, to be used for the transport of troops, weapons, and material, and the nation which is in a position to control them and is able to exploit that control has a great advantage over other nations.

There is, at the present time, no potential enemy on the distant horizon prepared to do battle with us on the high seas to prevent our control of surface communications, although this situation may well change with the development of guns firing atomic shells from relatively small, expendable vessels. The Royal Navy would, therefore, be free to take the offensive in enemy waters if we had enough ships of the right type.

Aim and Object

It must be our aim and object to build a Navy which will be able to *exploit* the power given by the control of surface communications, as soon as circumstances permit. The Soviet Union seems likely for many years to come—even when the menace of Communist aggression is a thing of the past—to be the potential threat to British interests, which in turn Spain, France, and Germany presented in the past. However, whatever enemy we may be called upon to fight, the only sure road to victory, without reliance on the United States, is to have the types and numbers of ships required for the offensive under modern conditions.

The Militant Character of Bolshevism

Translated and digested by the MILITARY REVIEW from an article by Eberhard von Pfister in "Wehrkunde" (Western Germany) 23 January 1953.

Is THE loud peace propaganda of the Kremlin being used only as a camouflage for aggressive aims, or does it arise from a genuine conviction of the detestableness of all war and the blessedness of peace? Anyone attempting to find the correct answer to this question must not only take into account Moscow's policy of the moment, but also the permanent Communist ideology. This determines, in spite of all subtle moves and changes in political tactics, the final strategic objective of the Soviets.

Communist Doctrines

The four prophets of communism—Marx, Engels, Lenin, and Stalin—established doctrines for the problems of war and peace, as well as for all other situations in life. These doctrines constitute the uniform pattern for the thinking and attitudes of the people of the Soviet Empire, and holds them to certain fixed views as regards war, pacifism, and the use of power.

Neither Marx, Engels, Lenin, nor Stalin provided any evidence of a fundamental and universally pacific attitude; instead, all concurred in the use of force and weapons.

Engels occupied himself so intensively with military studies that his friends jokingly called him the "General." His articles concerning military and political questions of his time received recognition even in professional circles. Marx willingly bowed to his judgment in these fields. Engels had participated in the fighting in Baden, as an officer in the ranks of the insurrectionists, and, therefore, most of his military and political theories dealt with the problems of civil war and armed insurrection.

Engels wrote a series of articles in 1852 under the name of Karl Marx, and which were printed in the *New York Tribune*, in which he stated:

> . . . Insurrection is an art the same as war . . . Once an insurrection has begun, act with the greatest of resoluteness and assume the offensive. A defensive attitude spells defeat for any rebellion . . . Surprise your adversary . . . seek daily for new, even though small, successes . . . Force your enemies to retreat before they are able to concentrate their forces against you. In short, in the words of Danton, the greatest master we have yet had of revolutionary tactics: "Boldness, boldness, and still more boldness!"

Marx and Engels both advocated compulsory military service. At their motion, the 1866 conference of the International Working Men's Association passed the following resolution:

> We propose universal national rearmament and universal instruction in the use of arms. We accept, as a temporary necessity, small standing armies which shall serve as schools for officers of the armed army. Every man fit for military service is to serve for a short while in these armies.

In an article written in 1870, Engels defended the French irregulars in the Franco-Prussian War and advocated partisan warfare. He used as a model the Prussian *Landsturm* Regulations of 21 April 1813 in which, as he stated:

> . . . Every man fit for military service, who is not already serving in the ranks of the regular forces of the *Landwehr*, is ordered to prepare himself for the holy warfare of self-defense, which allows the use of every means. The *Landsturm* will harass the enemy both in his advance and his retreat, giving him no opportunity to rest, attack his ammunition and provision transports, his couriers, his recruits, and his hospitals, launching surprise attacks on him at night, destroying his camp followers and his detachments, crippling him, and bringing uncertainty into every one of his movements. . . This law can indeed be designated as an exemplary manual for irregular forces.

The enduring influence of Engels on Lenin is well known. Both shared the love

for military organization. In 1915, in an article entitled "The Collapse of the Second Internationale," Lenin wrote:

> Let us take the modern army. It is one of the good models of organization. And this organization is good only on account of the fact that it is elastic, but, at the same time, is able to impart a unified will to millions of men.

Lenin repeatedly attacked pacifism and the possibility of total disarmament. As examples, we can quote excerpts from some of his articles and speeches:

> Let the sniveling and sentimental bourgeoisie dream of disarmament. But as long as there are oppressed and exploited human beings in the world, we must not strive for disarmament, but for the universal armament of peoples. ("Army and Revolution," 1905.)

> Do not listen to the sentimental whimperers that are afraid of war; there is still all too much in the world that has to be eradicated by the use of fire and the sword, for the freeing of the working classes. ("The Collapse of the Second Internationale," 1915.)

> War is nothing accidental, it is no sin, as the Christian divines think. Rather, it is an unavoidable feature of capitalism . . . The warfare of our day is a peoples war . . . Refusal to submit to military service, a strike against war, is simply stupidity, a lamentable and cowardly dream of an unarmed struggle against the armed bourgeoisie. ("Situation and Missions of the Socialistic Internationale," 1914.)

> The existence of the Soviet Republic alongside the imperialistic states, permanently, is unthinkable. In the end, either the one or the other will conquer. But until this end comes, a series of fearful clashes between the Soviet Republic and the . . . states is unavoidable. . . . (A speech on the 8th Party Day of the Bolshevists in 1919.)

These views of Lenin still influence Soviet thinking today.

Stalin's views on the subject were quite similar, and are seemingly reflected in a passage from his complete works, which were published in 1950:

> We are by no means against all war; we are only against imperialistic war, for the reason that it is a counterrevolutionary war. We are, however, for the anti-imperialistic, revolutionary war of liberation, regardless of the fact that such a war . . . is not possible without fearful bloodshed. . . .

Malenkov has expressed his views on this subject. In a speech in 1949, celebrating the anniversary of the Russian Revolution, he stated:

> What does history teach us? World War I brought to our country the victory of the great Socialist October Revolution. World War II brought the Peoples Democratic Government in Central and Southern Europe, and victory to the great Chinese nation. Can there exist any doubt about it that a third world war will be the grave of capitalism?

It should be evident that the maintenance of peace is, for the Soviets, never a matter of heart, but always a matter of impassionate, calculating policy. Their present peace offensive signifies only a new form of tactics in their permanent fight against the Western world.

Estimate of the Situation

Sir David Kelly, the former British Ambassador to Moscow, has given the following estimate of the situation:

> In 1949, the Politburo came to the conclusion that the catch-words of *class* and *economic struggle* no longer possessed sufficient drawing power, and that the only solution that would appeal to all men was the word *peace*. The basic thought in its ingenious simplicity was to stir the populations up against their governments in the matter of freedom, thus creating a revolutionary situation that would not necessarily lead to strikes and construction of barricades, but rather could lead to the circumstance that the great masses would demand the formation of more progressive coalition governments outwardly united under the banner of "Everything for Peace"; in reality, however, under controlling communistic influence, an experiment for whose success Czechoslovakia has proved a classical example.

Military Preparation

While Moscow outwardly affirms its love of peace, it carries on, at the same time, over its entire sphere of influence, total military preparation of the masses. This task falls to the lot of the great pre-military mass organizations, which have been established in all the satellite states along the same lines as the Soviet "Volunteer Associations for the Support

of the Army and the Air and Naval Forces." Thus, for example, the "Association for Co-operation with the Army" was formed in Czechoslovakia in 1951. This association has more than 4,000 subordinate work groups within its sphere of activity.

Moreover, basic military training has been made compulsory in all Czechoslovak schools. The pupils must learn to read maps, to estimate distances, and to march by maps. In biological instruction, they are taught protective measures against biological warfare. In the singing classes, they learn battle and marching songs of Czechoslovakia and the Soviet Union. The gymnasium periods are expected to heighten the courage of the pupils by increasing their feeling of responsibility for the fulfillment of their tasks and by accustoming them to discipline and co-operation. In the secondary schools, the pupils receive premilitary training in such subjects as tactics, marksmanship, army regulations, military geography, signal communications, and first aid.

It suffices to give the Czechoslovak example, for all satellite states follow more or less the same program. From early youth on, the militant ideas of bolshevism are instilled in the populations. The entire national life and especially the education of the young generation serve the aims of military training. Soldierly concepts and duties are constantly and systematically driven home, and thinking and sentiments accustomed in such a way to the possibility of a war that the transition from cold to hot war is quickly possible without any special propagandistic preparations.

Whatever fine words Communist diplomacy may make use of for purposes of camouflage, bolshevism continues to maintain its military character, which has distinguished it from its very inception.

NEXT MONTH

The next issue of the MILITARY REVIEW will feature the article "Atoms and Sea Power," by Colonel Irving D. Roth, an instructor at the Command and General Staff College. Colonel Roth discusses the effect the development of the atom bomb may have on sea power. He points out that changes necessitated by the use of atomic energy are in the tactical and technical measures taken to ensure that our fleet is able to carry out its mission—gaining and maintaining control of the sea to provide our country with the freedom of action necessary to maintain effectively our God-given liberty.

"The Military Staff: Its History and Development," from the *Canadian Army Journal*, will be included in the "Foreign Military Digests" section of the magazine. This article traces the slow development and use of the military staff from 2000 B. C. to the present time, pointing out that during some periods staffs were comparable with those of today while at other times military advancement was woefully lacking or neglected.

BOOKS OF INTEREST TO THE MILITARY READER

MY BROTHER BILL, A Biography of General Mitchell. By Ruth Mitchell. 344 Pages. Harcourt, Brace and Company, New York. $4.00.

BY LT COL RICHARD L. BISGARD, *USAF*

This is a book written by a devoted sister about her famous and controversial airman brother. The evidence presented in this "controlled diary" does reflect the furious energy and unlimited curiosity that consumed the man, Mitchell.

Through personal letters and knowledge, and family pride, she points out certain aspects which she is convinced that historians have overlooked—in that he *was* the champion not only for a separate air force-in-being, but for the safety and integrity of his country.

Certain name calling is documentary and factual, which leaves no doubt in the reader's mind just who might have made the errors of judgment during the years in question. One particular quotation by a high ranking officer generally sums up the stone wall of obstruction and hierarchy which Billy Mitchell was unable to scale. "The idea that the present or future development of aviation has or will create a third element in national defense known as 'air power' co-ordinate with land and sea power is fundamentally unsound from every tactical and strategical standpoint . . ."

It is true that many aspects of our national defense have been applied directly from the doctrine laid down by Mitchell more than 30 years ago, but this book is timely and good reading for any American.

THE NEW BREED. The story of the U.S. Marines in Korea. By Andrew Geer. 395 Pages. Harper and Brothers, New York. $3.50.

BY LT COL WILLIAM H. SOUDER, JR., *USMC*

The Old Breed relates the history of the regulars of the 1st Marine Division who landed at Guadalcanal and later went on to fight at Peleliu and Okinawa. *The New Breed* tells of the same division, and the individuals of the division, during the early months of the Korean conflict.

Beginning with the movement of its advance elements into the Pusan perimeter on 7 August 1950, the author follows the division through the bitter battles of the Naktong, the amphibious landings at Inchon and subsequent seizure of Seoul, and the heroic fight to the sea from frozen Chosin Reservoir.

The New Breed is not a formal history. Instead, it has been written to relate the experiences of individual riflemen, machine gunners, bazooka and BAR men, and small unit commanders and noncommissioned officers. The author mentions the name and home town of every member of the "new breed" whom he met in Korea.

Although decisions at division, corps, and higher level are seldom discussed, the "big picture" is maintained by brief transitional passages and situation maps.

Andrew Geer's writing is such that the reader gets an eyewitness account of each individual as he goes about the tasks of war. Once started, only the most pressing requirements would force you to lay this book aside.

SWORD AND SWASTIKA. By Brigadier General Telford Taylor. 431 Pages. Simon and Schuster, New York. $5.00.

BY COL FRANK J. CAUFIELD, *Inf*

In an extensively documented volume, Brigadier General Telford Taylor traces the origin, development, victories, and finally the overwhelming defeat of the German officer corps. *Sword and Swastika* is, however, more than a simple history. It points up a clear-cut lesson for all to see—the inevitable results when an able, ambitious, and ruthless group of military leaders employs its talents to further the ambitions of a political gangster.

Perhaps the most absorbing part of the book is an account of the intrigues within the German High Command. Although we have come to think of the German officer corps as exemplifying *esprit*, cohesiveness, and loyalty, a study of history disproves this concept. Not only was betrayal common within the corps but when certain generals—notably Von Bredow and Von Schleicher—were purged by the Nazis, not even one voice was raised in public protest.

Although the author unsparingly exposes the moral bankruptcy of both the German officers and the Nazis, the average reader will feel somewhat more tolerant toward the former and, if anything, more disgusted with the latter.

In the concluding chapter, the author raises, without answering, some penetrating questions, particularly: What loyalty did the German officers owe, and to whom? Was it their duty to affect or check the course of their national government? As soldiers, were they bound by their oath of allegiance to follow Hitler? Are military men, in general, merely the mechanics of the military machine without voice as to how it shall be used? Are military men morally bound by oath to support the *de facto* ruling power, even though it be patently a bloody tyranny bent on conquest?

As the author points out, these problems, having been exposed but not resolved at Nuremberg, will be with us for a long time and touch the very roots of governmental processes.

General Taylor's excellent but grim book deserves the attention of all those who are less than satisfied with the superficial and often supercilious treatment accorded these fundamental issues.

ARCTIC SOLITUDES. By Admiral Lord Mountevans. 143 Pages. Philosophical Library, New York. $4.50.

BY LT COL THOMAS O. BLAKENEY, *Armor*

Arctic Solitudes is an interesting account of the history of arctic exploration. It is a brief, but very readable, treatment of the subject. The author writes with the authority which comes only with first-hand knowledge of the subject. This is his fourth book concerning polar exploration. It will interest American readers to know that Admiral Lord Mountevans assumed his title from the antarctic Mount Evans which had been named after him.

This account of arctic exploration takes the reader from the earliest known exploration by the Greeks and Vikings through modern exploration by air. The contribution of Russian explorers and particularly the amount of work they accomplished will interest many readers. The book contains many items concerning animal and plant life in the sea and on land.

The author has written this book in the easy style of an adventure story. It is unencumbered with detail, yet it highlights the really important work of the arctic explorers. As a factual adventure story, it will be of interest to the layman as well as the arctic expert.

MOBILIZING RESOURCES FOR WAR: The Economic Alternatives. By Tibor Scitovsky, Edward Shaw, and Lorie Tarshis. 279 Pages. McGraw-Hill Book Co., Inc., New York. $4.50.

THE ROMMEL PAPERS. Edited by B. H. Liddell Hart. 545 Pages. Harcourt, Brace and Co., New York. $6.00.

BY COL L. E. POPE, *Armor*

Erwin Rommel, one of the masters of mobile warfare in World War II, had an urge to express himself on paper, as well as in action. Throughout his activities in World War II, he constantly kept in mind the project of a book. He continually made notes and developed them into narrative form at every lull in his operations. This book is the result of those notes.

The Rommel Papers will add to the reputation and glamour already surrounding the famed "Desert Fox." The descriptive clarity and dramatic intensity of the book indicates that Rommel could write as well as fight. *The Rommel Papers* is, in the reviewer's opinion, the best book by or about a German general yet published.

The theme is war! It is war in narrative form, honestly described and vividly portrayed by a commander of a mobile formation, who believed in commanding from the head of his column. Not only does the reader get a story of mobile combat operations, but also the greater military value of Rommel's numerous comments on military subjects. As an example:

> I have found again and again that in encounter actions, the day goes to the side that is the first to plaster its opponent with fire. The man who lies low and awaits developments usually comes off second best. . . . We had learned one important lesson during this operation (Alamein)—this was that the possibilities of ground action become very limited if one's adversary commands the air with a powerful air force. . . . In the North African desert, non-motorized troops are practically no value against a motorized enemy.

Other reflections are about concentrations in terms of time rather than space; about flexibility as a means to surprise; about the stultifying conventions of the "quartermaster" mind; about "intellectual officers" who try to direct battles from an arm chair; and many others.

Rommel's personal narrative covers the invasion of France in 1940 and his campaigns in Africa from 1941 to 1943. General Fritz Bayerlein, one time chief of staff of the *Afrika Korps* and a notable field commander, has expertly filled in a gap in Rommel's papers for the African winter campaign of 1941-42. General Bayerlein also describes the preparations for the Normandy landings and the first phases of that battle. It was during this period that Rommel had operational control of the forward troops. General Bayerlein's story includes many quotes from Rommel's official documents and personal letters to his wife at that time. These personal letters show Rommel's personality as a devoted husband and a concerned father. Several of Rommel's estimates of the situation are included; one of the more interesting being the one made on 10 June 1944.

Manfred Rommel, the Field Marshal's son, has added a moving chapter on the last days of his father's life. However, little is presented that throws additional light on Rommel's part in the plot against Hitler.

Captain Liddell Hart, the British military critic, has edited the book and inserted many historical facts and some opinions that generally improve the understanding of the operations being described. In the introduction, Liddell Hart asserts that there is no doubt of Rommel's qualification as a "Great Captain." It is doubtful if history will place Rommel on the same level as Frederick the Great or Napoleon, however, there appears to be little doubt that Rommel has a safe niche among those colorful and daring military commanders who, even in defeat, have risen at least equal to their conquerors in the esteem of military experts.

Regardless of Rommel's correct place in history. *The Rommel Papers* is an intensely interesting book to the casual reader. To the professional soldier, it is a book from which many military lessons can be learned and many arguments stimulated.

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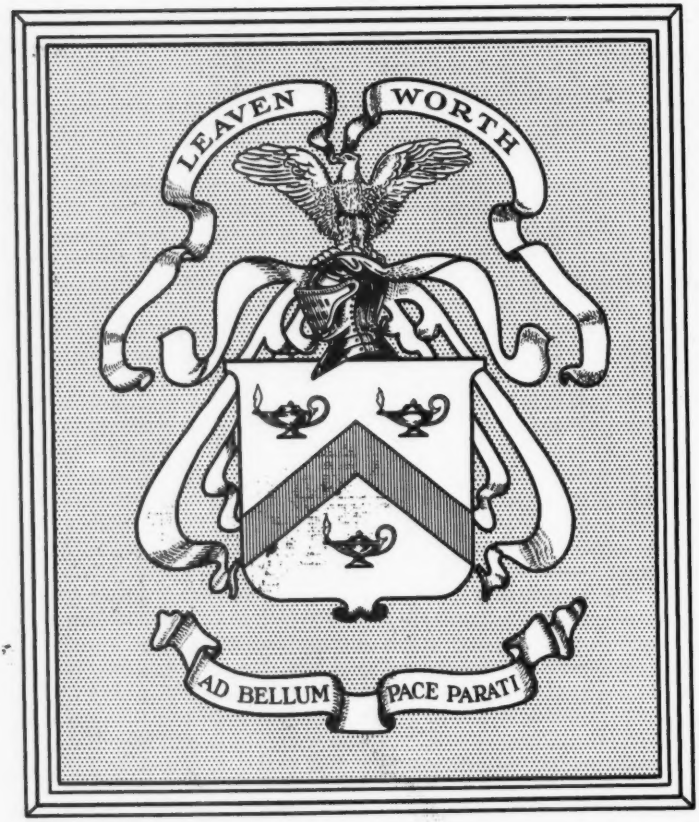

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